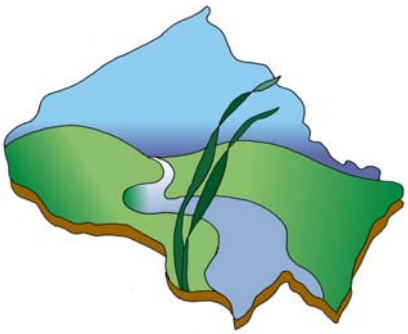
00-DP-3320 MD0068349 MARCH 2008

Annual Report for 2006 NPDES Municipal Separate Storm Sewer System Permit



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for the Maryland Department of the Environment

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LIST OF ACRONYMS

BMP Best Management Practice

CIP Capital Improvement Program

USACE U.S. Army Corps of Engineers

DEP Department of Environmental Protection

DPS Department of Permitting Services

DPWT Department of Public Works and Transportation

EPA U.S. Environmental Protection Agency

ESC Erosion and Sediment Control

ESD Environmental Site Design

GIS Geographic Information System

IBI Index of Biological Integrity

LID Low Impact Design

MDE Maryland Department of the Environment

MDP Maryland Department of Planning

MNCPPC Maryland National Capital Park and Planning Commission

MS4 Municipal Separate Storm Sewer System

NPDES National Pollutant Discharge Elimination System

SPA Special Protection Area

USGS U.S. Geological Survey

WSSC Washington Suburban Sanitary Commission

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LIST OF TABLES

LIST OF ATTACHMENTS

A. COMPACT DISK WITH THE FOLLOWING ELECTRONIC FILES

APPENDIX.doc Annual Report Databases

MDENPDES06.mdb Required information in ACCESS 2000 database.

Urban Best Management Practices
NPDES Construction General Permits
Erosion and Sediment Control Responsible Personnel Training Certification
Illicit Discharge Program (and type codes)
Chemical Monitoring Site
Continuous Flow Monitoring
Chemical Monitoring Storm Event Data
Stormwater Programmatic Information
Stormwater Implementation Information

Letter to USACE To Eliminate Pond Retrofit at Stewart-April Lane. March 2006.

NPDES_2006_WaterChemistryMonitoring_VERSAR.pdf

NPDES_2006_DesignManual_Monitoring_Final.pdf

RAINSCAPES_Projects&PlantList_2005-0001-071.pdf

REPORT_to_Council_091506_final.pdf

SDI2007.zip GIS Storm drain file for 1998 through May 2007

Special Protection Area Program Annual Report 2006.pdf

B. REPORTS

Letter to USACE To Eliminate Pond Retrofit at Stewart-April Lane. March 2006

NPDES Water Chemistry Monitoring in Lower Paint Branch Watershed.

RAINSCAPES Projects and Plant List for NFWF grant 2005-2006.

Report to Council.. Resolution R-15-1562. September 15, 2006.

Special Protection Area Program Annual Report 2006

MONTGOMERY COUNTY MARYLAND
NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM
MUNICIPAL SEPARATE STORM SEWER SYSTEM DISCHARGE PERMIT

I. BACKGROUND

This submission fulfills the requirement for an annual progress report to the Maryland Department of the Environment (MDE) as specified in Part V of Permit Number 00-DP-3320 MD0068349 (the Permit). The five-year Permit term began July 5, 2001, covering stormwater discharges from the municipal separate storm sewer system (MS4) in Montgomery County, Maryland. Significant accomplishments in the County's stormwater management program during the 2006 calendar year are highlighted in the Overview. The report itself has been organized based on the headings in the Permit's Section III. to document how specific required elements of the County's stormwater management program are being implemented. The database format for electronic submission is included on compact disc (CD) in Attachment A. This includes the field names, formats, and explanatory information provided by MDE.

The Montgomery County Department of Environmental Protection (DEP) has primary responsibility for the majority of the requirements of the Permit, including interagency coordination, annual reporting, source identification, discharge characterization, monitoring, stormwater facility inspection and maintenance enforcement, illicit discharge detection and elimination, watershed public outreach, and watershed restoration plans. The Department of Permitting Services (DPS) is responsible for the County's Stormwater and Sediment and Erosion Control Program. The Department of Public Works and Transportation (DPWT) is responsible for storm drains, road and roadside maintenance, solid waste disposal, and the General Permit for Storm Water Discharges Associated with Industrial Facilities at the County-owned vehicle and road maintenance and solid waste management facilities.

The MDE modified the County's Permit effective January 26, 2004 to add six small localities as co-permittees for coverage under the Phase 2 of the National Pollutant Discharge Elimination System (NPDES) MS4 Permit Program. There were five municipalities: the Towns of Chevy Chase, Kensington, Poolesville, and Somerset, and Chevy Chase Village; and one special tax district, the Village of Friendship Heights.

This is the sixth report in this current permit cycle. The County's Permit was scheduled for re-issuance in July 2006. The MDE has been in negotiations with the U.S. Environmental Protection Agency Region 3 since November 2005 to provide Permit language that includes a closer link between program and project implementation and achieving any established total maximum daily loads and water quality standards. The MDE has indicated that the requirements of the next round Permit may be significantly different from existing conditions. The revised timeframe for re-issuance is now mid- to late 2008.

II. OVERVIEW

Permit Administration

An updated organization chart and contact information is shown in Table III-A1 and enclosed electronically on the CD in Attachment A. These are contacts as of January 2008.

Legal Authority

During 2006, the County obtained legal authority to enforce its water quality ordinance within the City of Takoma Park boundaries. In 2004, the Office of the County Attorney had determined that the State of Maryland Code prohibited the County from exercising its authority over the stormwater management system within the City of Takoma Park "unless the City and the County otherwise agree." This prohibition had included investigations and enforcement activities for water quality complaints within the City of Takoma Park.

Source Identification

The Permit requires Montgomery County to inventory and map using a geographic information system (GIS) the potential pollutant sources and means of conveyance into receiving streams and other water bodies. The County has submitted with this report the update information for its storm drain inventory from 1998 to the end of May 2007. The information is in an ESRI Personal GeoDatabase (Microsoft Access) format. Each storm drain feature (such as headwall, outfall, pipe, etc.) is a feature class including all associated attributes. In addition, the drainage area is included for outfalls greater than the specified dimension (i.e. 36" for residential and commercial areas and 15" for industrial areas.) The County also submitted the most recent Urban Best Management Practices (BMPs) database of its stormwater management facilities.

Discharge Characterization

The Permit requires that "Montgomery County shall contribute to Maryland's understanding of stormwater runoff and its effect on water resources by conducting a monitoring program."

Long-term Discharge Characterization: The County submitted a summary of baseflow and storm event results and calculated pollutant loadings for all storms sampled at the Stewart-April Lane Tributary (outfall) and Lower Paint Branch (instream) monitoring stations. During 2002-2006, the baseflow mean concentrations (MCs) of total nitrogen (TN) in both the Stewart-April Lane tributary and Paint Branch were higher than corresponding storm event mean concentrations (EMCs). Stormflow EMCs were higher than baseflow MCs for other sampled parameters. A Mann-Kendall test for trend (Hirsch et al., 1992) of Stewart-April Lane tributary zinc results over time showed a significant decreasing trend in concentrations during baseflow, and during storm event rising and peak limb portions of the hydrograph. Copper concentration data showed no trend.

During 2006, the County changed the pollutant control approach proposed for the drainage area into the Stewart-April Lane tributary. The County is now focusing on source control and pollution prevention in the watershed rather than construction of a stormwater management

pond. This approach has included installation of storm drain inlet inserts and routine storm drain inlet cleaning, twice-monthly streetsweeping, and vegetated bioswales in the County's right-of-way. Water chemistry monitoring and solids characterization will continue in order to document water quality improvements that result from structural and operational controls to reduce pollutants and trash being carried downstream. Data analysis and final report will occur during 2008.

Biological conditions of both the tributary and mainstem were unchanged during 2006. The benthic macroinvertebrate community was poor in the Stewart-April Lane tributary and fair in the lower Paint Branch mainstem both upstream and downstream of the tributary. While the fish community was good both upstream and downstream of the tributary, there were no fish caught in the Stewart-April Lane tributary which resulted in a poor rating.

The Permit also requires the County to conduct a geomorphologic stream assessment between the outfall and instream monitoring station. Preliminary results based on only three years of monitoring were submitted in this report.

Design Manual Monitoring: The County submitted preliminary results of monitoring at the Little Seneca LSLS104 "test" and Soper's Branch, Little Bennett Watershed, LBSB101 "control" subwatersheds selected to evaluate the effectiveness of the Maryland 2000 Design Manual criteria at protecting the stream channel. Full conversion from erosion and sediment control (ESC) to post-construction stormwater management control is still several years away, so conclusions are limited to the effectiveness of the ESC devices on stream morphology and biology.

Both the control and test area have shown changes in morphological features over the past three years. Preliminary results depict a degradation in the benthic macroinvertebrate communities most likely due to the construction operations now underway on the western side of the tributary. These observed impacts on stream morphology and biology may not persist after land cover is stabilized.

Management Programs

Stormwater Facility Maintenance: In 2006, the DEP performed 1,449 initial inspections to assess the repair and maintenance needs of a stormwater management facility. Of the 1,449 inspections, 1,238 were at privately owned facilities and 211 were at publicly owned facilities. These initial inspections identified the need for repair at approximately 38% of all structures--about 97% of the aboveground structures and 10% of the underground structures. In contrast, during 2005, initial inspections identified that a repair was needed at 91% of the aboveground structures and 26% of the underground structures.

Stormwater Facility Permitting: The number of sediment control permits, projects, and total developed acres decreased in 2006 compared to 2005 and earlier years. Of significant note, almost 100% (639 out of 642 acres) of land developed during 2006 were served by stormwater management facilities. The trend for increases in non-structural controls continued. Examples of non-structural controls include rooftop runoff disconnection and drainage to vegetated buffers or grassed swales.

Outfall Screening: For the year 2006, the DEP screened a total of 140 outfalls with 63 having dry weather flows. The DEP focused on the outfalls that are contained within the drainage areas of biological monitoring sites that showed impairment due to factors not directly attributable to physical habitat degradation. Additional outfalls were selected in areas that had previously shown impairment not readily attributable to impaired habitat or with a history of pollution incidents (e.g., 2000 Rock Creek fish kill). Errors in outfall location or type as shown on the existing maps were reported and corrected in the GIS inventory. Ten new outfalls were identified and added to the outfall GIS inventory.

Source tracking for a high Chlorine level resulted in discovery of a recent spill of liquid chlorine solution at a nearby swimming pool pump room, which entered the storm drain system. Secondary containment was installed on the chlorine solution tanks as a corrective measure. Suspicious discharges were observed at two of the 38 piped streams surveyed and both traced to cooking grease discharges from nearby commercial establishments. Measures to correct these unauthorized discharges were initiated.

County's Industrial Facilities: In general, the annual assessments found that compliance with the Stormwater Pollution Prevention Plans continues to be good. However, no progress was made on updating the Stormwater Pollution Prevention Plans to reflect current operations at these facilities.

Public Education and Outreach: The responsibility for all general watershed outreach remained within the Division of Environmental Policy and Compliance (DEPC) during 2006. The position dedicated to watershed outreach became vacant in June and was abolished during a restructuring of the DEP outreach program in 2007. The DEPC continued to provide outreach support for water quality enforcement issues, to the stakeholders on the Water Quality Advisory Group, and for regional efforts under the Anacostia Watershed Restoration Agreement and the Patuxent Reservoirs Watershed Protection Agreement. The Watershed Management Division (WMD) continued to conduct watershed restoration project outreach, including public meetings, field walks, and telephone and e-mail responses. In addition, the WMD-Biological Monitoring staff provided technical assistance to a variety of community and environmental groups for workshops on volunteer biological monitoring.

Rainscapes. During 2006, the DEP continued to implement its grant-funded Rainscapes Program as a 'beyond the CIP' effort which focused on small, on-site practices that can be voluntarily implemented to reduce runoff impacts from private property. An important outcome from this phase of the program was the development of successful partnerships to carry the concepts and technology beyond the staffing limits of DEP. A second outcome was a list of native plants which could be obtained locally and which showed good survival in the demonstration projects. The final report on this phase of the Rainscapes Program and the native plant list are included in electronic and hard copy form as attachmenst to this report.

This phase of the Rainscapes Program, which focused on outreach and education, was very well-received by residents, particularly members of the County's environmental community. In June of 2006, the County Council added $500,000 to the DEP budget to provide financial incentives to private property-owners to implement these techniques on their properties. The goal for this

expanded program was to move beyond outreach and education to demonstrate that sufficient interest and level of participation would bring about measurable improvements in runoff water quality. A full-time staff position for this Program was created and filled in January 2007.

Road Maintenance and Pollution Prevention: This includes storm drain maintenance, roadside maintenance, and practices to reduce impacts from highway operations. During 2006, there was no change in the level of effort for storm drain maintenance so that at the current rate of less than 0.5% of the system per year, it will take 200 years for a first pass of the entire system.

During the winter season for 2006, the DPWT-Division of Highway Services applied 29,799 tons of sand and salt. The DPWT determined that winter deicing was at a reduced level compared to average years and there was no need for a countywide sweeping to remove excess applied material. There was targeted sweeping of some arterial routes and the DEP priority residential routes of the Anacostia and Lower Rock Creek watersheds. The amount collected through streetsweeping represented 3.28% of the total amount applied.

Integrated Pest Management (IPM): The County continues to implement its IPM program at county owned facilities, with an emphasis on physical rather than chemical measures for pest control. There were no fertilizers applied at any of the 99 facilities comprising 251 acres that were in the County landscaping program during 2006. The County continues to work with facility occupants to stress the need for proper sanitation measures to control pests and using pesticides only when all other measures have failed.

Watershed Restoration

The Permit requires that the County continue its systematic assessment of water quality within all of its watersheds and to maximize water quality benefits in priority subwatersheds using efforts that are definable and the effects of which are measurable.

Watershed Screening: During 2006, watershed screening was conducted in the Little Seneca and Great Seneca watersheds. Fifty-four stations in these two watersheds were monitored for both benthic macroinvertebrates (benthos) and fish, six of which showed biological impairment but habitat in the good range. An additional 19 stations with drainage areas less than 300 acres were monitored for benthos only since prior experience had shown that stream segments with such small drainage areas typically support a limited fish community. Of these 19 stations, two showed impaired biology but habitat in the good range.

Further investigation will be requested for the four stations in the Little Seneca watershed and four stations in the Great Seneca watershed that were identified as having other than habitat impairment. Information for two stations within the City of Gaithersburg will be passed on to them for follow up. The other six stations will be among those to be screened for illicit discharges during 2007.

Selected Restoration Watershed: The total acres developed under County responsibility for stormwater management (81,603) is about 33.6% of total acres minus excluded areas. Of those acres, about 52% (42,480) has some sort of stormwater management. The 10% watershed restoration goal based on these calculations is 2,580 acres. The combination of 2,434 acres in the selected restoration watershed of Turkey Branch and the 2,872 acres to completed

restoration projects through 2006 exceeds the calculated 10% goal of 2,580 acres.

Construction of the Turkey Branch Stream Restoration Project began in January 2007 and neared completion by spring 2008. The estimated project cost is $3.6 million to complete the construction of two new stormwater management ponds and retrofit of an existing third pond for control of 406 acres. The project also involves substantial stream restoration, covering impacts in 1.7 linear miles of stream, with total scope of work covering 3.5 linear miles of stream.

The second watershed selected for restoration is that of the Lower Paint Branch. Three subwatersheds have been identified as priorities for restoration. The engineering design for Hollywood Branch (reach 3) Stream Restoration Project is expected to begin in 2008 and Snowdens Mill Tributary is currently planned to begin the engineering design in FY09. The third tributary, Stewart April Lane, has been monitored as part of the Permit requirements since 2001 and is the current focus of a souce control pollutant and trash management pilot project.

Program Funding

The Permit requires the County to submit a fiscal analysis of its expenditures and maintain adequate program funding to comply with all conditions of this permit. The County expended approximately $14 million to comply with Permit requirements during FY07. This was an increase of about $1.5 million compared to the previous year. Most of the increase came from the Capital Improvement Program for watershed restoration project implementation.

In addition to the FY07 funding to meet Permit requirements, the County Council approved $1.25 million through the Water Quality Protection Charge to identify and increase implementation of low impact design (LID) and environmentally site design (ESD) in both the public and private sectors. The projects from this special funding will go beyond existing Permit-required programs, focusing on source control for watershed restoration. An additional $100,000 was allocated to initiate a flow and water chemistry monitoring network.

Assessment of Controls

The Permit requires the County to estimate TN and total phosphorus (TP) annual stormwater loads from developed lands and the reductions associated with existing stormwater controls in the County for 2006. Out of the total of 324, 552 acres in the county, 81,603 developed acres are under the County's control for stormwater. This excludes the rural zoning, parklands, forests in parklands, the Cities of Rockville, Gaithersburg, and Takoma Park, state and federal properties, and state maintained roads. Existing stormwater management provides an estimated 15.1% reduction in TN and a 19.2% reduction in TP loadings in runoff compared to uncontrolled conditions based on loadings by land use categories and loadings reductions by acres controlled by best management practice type.

Special Protection Area Program

The Special Protection Area Program (SPA) was established in 1994 to protect high quality waters from construction and development-related impacts. Part of the Clarksburg SPA is targeted for monitoring to meet the NPDES permit requirements for discharge characterization as summarized in Section II-D2. The 2006 SPA Annual Report summarizes monitoring to date

on the effectiveness of erosion and sediment control (ESC) and stormwater best management practices and development impacts on stream biological and habitat quality. Electronic and hard copy of the 2006 SPA Annual Report is attached to this report.

Recommendations include setting the same priority for siting best management practices on the lots as achieving desired densities in the Clarskburg Master Plan SPA., considering imperviousness caps particularly for headwater areas, addressing the continuing conflicts between SPA goals for protecting stream resource conditions with those for road code and other development requirements, and converting construction runoff controls to stormwater management as early as possible during the last phase of construction.

Special Programmatic Conditions

Interjurisdictional Cooperation

The County continued its activities in ongoing multi-jurisdictional efforts to protect the Anacostia and the Patuxent Reservoirs Watershed. Over the past 10 years, this has led to cooperative funding for monitoring, modeling, and restoration and retrofit project inventories, design, and construction. The County monitoring results are being used for regional screening and priority setting in these watersheds. The programs and projects being implemented through these watershed groups contribute toward the County's Permit-required watershed restoration goal and also the pollutant reductions that will be needed to meet the Tributary Strategies nutrient caps.

Potomac Trash Free Treaty Initiative

In June 2006, County Executive Douglas Duncan signed the Potomac Trash Free Treaty, with its goal to achieve a trash free Potomac by the year 2013. In Maryland, the Anacostia River was selected as the first subwatershed of the Potomac for which a trash management strategy towards achieving this goal would be developed. Montgomery County is a participant on the workgroup to develop and implement programs, policies, and projects that will achieve the objectives of the Anacostia Watershed Trash Reduction Strategy.

Report to the County Council

In September of 2006, the DEP submitted to the Council a special report required through Montgomery County Council Resolution R-15-1562 adopted on August 1, 2006. Through that resolution, the Council requested the DEP to prepare and submit to Council a report on the status of the Montgomery County Permit. The Council requested information on the status of the total maximum daily loads program within the County, on permitting and implementation of ESD/LID approaches, on expanded watershed restoration targets, and on streamflow and water quality monitoring. The Final Report to Council is included in electronic and hard copy form as attachments to this report.

Clean Water Task Force

In May 2006, the County Executive and County Council jointly established the 'Clean Water Task Force' to examine the status of the County's stormwater management and water resources

protection programs. The Task Force members include the directors and high-level administrators from DEP, DPS, DPWT, Montgomery County Public Schools Facilities Management, the Maryland-Ntional Capital Park and Planning Commission (MNCPPC), and the Washington Suburban Sanitary Commission (WSSC). These agencies either have regulatory and review responsibilities or potential significant impacts on runoff from their operations or facilities.

The Final Report, completed in spring 2007, included short-term recommendations that could be implemented without significant funding or staffing impacts and long-term recommendations that required additional staff, funding, policy, or regulatory changes. Information on the Task Force recommendations will be included in the Annual Report for 2007.

III. STANDARD PERMIT CONDITIONS

A. Permit Administration

An updated organization chart and contact information is shown in Table III-A1 and enclosed electronically on the CD in Attachment A. These are contacts as of January 2008.

Table III-A1. Organization Chart for Montgomery County Permit-Required Programs

Part III. Standard Permit Elements	**RESPONSIBLE PARTY**			
	Department	***Name***	***Title***	***Telephone***
A. Organization Chart	*DEP/DEPC*	Meosotis Curtis	*Senior Planning Specialist*	240-777-7711
B. Legal Authority	*OCA*	Walter Wilson	*Associate County Attorney*	240-777-6759
C. Source Identification				
GIS development and update	*DEP/DO*	Vicky Wan	*Manager*	240-777-7722
GIS for storm drain system	*DPS*	Yung-Tsung Kang	*Senior IT Specialist*	240-777-6636
GIS for Stormwater Management Facilities and Urban Best Managment Practices Database	*DEP/WMD*	Amy Stevens	*Manager*	240-777-7766
D. Discharge Characterization				
Water Chemistry Monitoring	*DEP/DEPC*	Meosotis Curtis	*Senior Planning Specialist*	240-777-7711
Biological and Physical Habitat Monitoring	*DEP/WMD*	Keith Van Ness	*Senior Water Quality Specialist*	240-777-7726
Design Manual Criteria Evaluation	*DEP/WMD*	Keith Van Ness	*Senior Water Quality Specialist*	240-777-7726
	DPS	Leo Galanko	*Senior Permitting Services Specialist*	240-777-6242
E. Management Programs				
Stormwater Facility Inspections and Maintenance	*DEP/WMD*	Amy Stevens	*Manager*	240-777-7766
Stormwater Management Permitting and Plan Review	*DPS*	Richard Brush	*Manager*	240-777-6343
Illicit Connection Detection and Elimination Program	*DEP/DEPC*	Steve Martin	*Field Program Manager*	240-777-7746
County Facility Operations Compliance	*DPWT/DO*	Al Roshdieh	*Division Chief*	240-777-6008
Illegal Dumping and Spills	*DEP/DEPC*	Steve Martin	*Field Program Manager*	240-777-7746
Erosion and Sediment Control	*DPS*	Michael Reahl	*Manager*	240-777-6344
General Environmental Outreach	*DEP/DO*	Ansu John	*Outreach Specialist*	240-777-7746
Road and Roadside Maintenance	*DPWT/DHS*	Keith Compton	*Field Services Section Chief*	240-777-7607
Stormwater Pollution Prevention Plans	*DPWT/DO*	Ligia Moss	*Senior Engineer*	240-777-7514

Table III-A1. Organization Chart for Montgomery County Permit-Required Programs				
Part III. Standard Permit Elements	**RESPONSIBLE PARTY**			
	Department	***Name***	***Title***	***Telephone***
F. Watershed Restoration				
Countywide Monitoring	*DEP/WMD*	Keith Van Ness	*Senior Water Quality Specialist*	240-777-7726
Assessments and Project Implementation	*DEP/WMD*	Daniel Harper	*Manager*	240-777-7709
G. Program Funding	*DEP/DEPC* *DEP/WMD* *DPS* *DPWT*	Stan Edwards Steve Shofar Stan Wong Ligia Moss	*Division Chief* *Division Chief* *Division Chief* *Senior Engineer*	240-777-7748 240-777-7736 240-777-6310 240-777-7514
H. Assessment of Controls	*DEP/DEPC*	Meosotis Curtis	*Senior Planning Specialist*	240-777-7711
Part IV. Special Programmatic Considerations	*DEP/DEPC*	Meosotis Curtis	*Senior Planning Specialist*	240-777-7711
Part V. Annual Reports	*DEP/DEPC*	Meosotis Curtis	*Senior Planning Specialist*	240-777-7711

DEPARTMENT ADDRESSES:

DEP/DEPC: *Department of Environmental Protection/ Division of Environmental Policy and Compliance*
255 Rockville Pike, Ste 120, Rockville MD 20850

DEP/DO: *Department of Environmental Protection/ Director's Office*
255 Rockville Pike, Ste 120, Rockville MD 20850

DEP/WMD: *Department of Environmental Protection//Watershed Management Division*
255 Rockville Pike, Ste 120, Rockville MD 20850

DPS: *Department of Permitting Services/Division of Land Development Services*
255 Rockville Pike, 2nd floor, Rockville MD 20850

DPWT/DHS: *Department of Public Works and Transportation/Division of Highway Services*
101 Orchard Ridge Dr. 2nd Flr. Gaithersburg MD 20878

DPWT/DO: *Department of Public Works and Transportation/Division of Operations*
101 Orchard Ridge Dr. 2nd Flr. Gaithersburg MD 20878

OCA: *Office of the County Attorney*
101 Monroe St. 3rd Floor, Rockville, MD 20850

B. Legal Authority

The MDE modified the County's permit effective January 26, 2004 to add six small localities as co-permittees for coverage under the Phase II of the NPDES MS4 Permit Program. The County is continuing its oversight, inspection, and enforcement authority over these five municipalities: the Towns of Chevy Chase, Kensington, Poolesville, and Somerset, and Chevy Chase Village; and one special tax district, the Village of Friendship Heights.

During 2006, the County obtained legal authority to enforce its water quality ordinance within the City of Takoma Park boundaries. In 2004, the Office of the County Attorney determined that the State of Maryland Code prohibited the County from exercising its authority over the stormwater management system within the City of Takoma Park "unless the City and the County otherwise agree." This prohibition included investigations and enforcement activities for water quality complaints within the City of Takoma Park.

The elected officials of both the City of Takoma Park and the County signed a memorandum of understanding on September 11, 2006 to provide the authority for County enforcement within the City of Takoma Park under the Water Quality Control section of the County Code. On October 24, 2006, the County Council approved Resolution 15-1644 to complete the process necessary for the DEP to administer and enforce the Water Quality Control section (Article IV of Chapter 19) within the City of Takoma Park.

C. Source Identification

C1. Electronic Mapping

The DPS continues work on drainage area delineation for the storm drain system added since October 1997. The DPS has digitized storm drain features for approximately 70 public and private storm drain permits each and 10 Capital Improvement Program (CIP) projects this year. The effort added about 1,500 points (headwall, manhole, inlet, and outfall) and lines (channel, culvert, and pipe), respectively, to the existing storm drain inventory. The database is mainly up-to-date or ahead of storm drain point and line features that are either constructed or under construction.

The DPS was not able to digitize additional drainage areas to outfalls during 2006 due to resource limitation. However, the DPS has identified all outfalls that meet the 36" for residential and commercial areas and 15" for industrial areas. Two GIS interns will be working full time on drainage area digitization during summer 2007 with plans to complete all drainage area digitization and submit these with the next annual report.

Attachment A includes a CD with a zip file containing the DPS Storm Drain Inventory completed as of the end of May, 2007. The information is in an ESRI Personal GeoDatabase (Microsoft Access) format. Each storm drain feature (such as headwall, outfall, pipe, etc.) is a feature class including all associated attributes. In addition, the DrainageArea feature class is the new one for outfalls greater than the specified dimension (i.e. 36" for residential and commercial areas and 15" for industrial areas.

C2. Urban BMP Database

The County maintains an electronic database of its stormwater management facilities which is used to generate the form required for the MDE's Urban BMP database.
This data is included in electronic format on the CD in Attachment A.

There are 3,490 records in this database, shown by structure type in Table III-C1. This is an increase of only 2 records from that submitted for last year. The DEP has made significant efforts again this year to find information from existing paper files for all facilities constructed prior to the County's first Permit (1996), as well as to update our existing electronic records of stormwater facilities. This effort requires going through each record in the Microsoft Access database used to maintain data on the County's stormwater facilities, reviewing paper files kept by the Department of Permitting Services (DPS), and using geospatial analysis to correctly update the data. As this occurs, duplicate records and records for non-existing structures are removed from the database.

To date, over 600 records with inaccurate data have been removed from the Microsoft Access database. At the same time, the DEP is working on improving the geospatial DA and point location geodatabase. Due to the concurrent effort to improve both the Microsoft Access database and the geodatabase, the data between the two databases may not be identical at the time of the generation of the Urban BMP Database NPDES report.

During 2006, the DEP began installing and configuring a new on-line data system to track their asset, inspection, and maintenance data. Thus data entry and update was halted in December 2006 and is not expected to begin again until October 2007. The DEP anticipates working on eliminating the backlog of data entry and GIS data creation beginning in October 2007 and continuing through 2008.

For 2006, the three structure types with the greatest number are Oil Grit Separator (706), Dry Pond Quantity Control Only (439), and Flow Splitter (248). There are approximately 1,964 unique sites represented with multiple facilities on one site sharing the same integer for structure number (STRU_NO) but different non-integer number (e.g. STRU_NOs 1002 and 1002.02 are on the same site). The multiple facilities may be in-series (for sequential treatment) or may be separately located around the site. There are 2,835 geospatial data points designating the control structure or other feature for the stormwater facilities in Montgomery County. There are 2,491 geospatial polygons for the drainage area (DA) of the stormwater facilities. There are more geospatial points than DA because some pretreatment and diversion devices have the same DA as the terminal facility and are not delineated.

There are a few data fields with consistent missing data or data irregularities, including four required for the Urban BMP database.

Drainage Area (DA) – There are structures shown in the database that are still missing DA. This is because the DA has not yet been calculated or the facility itself has not yet been confirmed through the inspections program and therefore may not exist. The effort to improve the database may also have resulted in facilities identified that have not yet had their DA delineated. Furthermore, pretreatment and diversion devices will not have a separate DA as these facilities have identical DAs and are not delineated.

Built Date – For many of the pre-1996 structures, the date was not recorded and cannot be determined from existing paper files. The DEP is making an effort to add built date data for the facilities entered into the database after 1996.

Land Use – The Maryland Department of Planning (MDP) land use classification included with the Urban BMP Database are based on the 2001 data layer provided by MDP. Due to the date of this data, some land uses in the database do not accurately reflect the updated land use conditions known by the County at the time of the submission.

Structure Type – The MDE structure type of other is frequently used by the DEP. An explanation of how DEP classifies structures with an MDE "other" structure type is included in general comments.

Permit Number – The DEP has included a "place-holder permit number" for the facilities that were built prior to 1986 and which do not have a permit number. Since many of these facilities were built prior to Montgomery County's authority to permit such facilities, the paper files may not exist and therefore the DEP will not be able to recover a permit number. This place holder permit number is "0000000000" and is the DEP's final attempt to recover the data from the paper files. All original permit numbers known for the facilities built prior to 1986 were entered into the database (typically a 6 digit number). In addition, a 10 digit place holder number beginning with the six-character string '900118' was also entered for those facilities built prior to 1986. This number was created by the DPS in order for those facilities to be entered into their database system. The DEP has kept this permit number in order to allow interfacing with the DPS database. There are still data missing in the permit number field for some facilities built after 1986. The DEP will focus over the coming year to pull the permit number from the paper files and as-built plans to populate this field.

ADC Map – Over the past two years, DEP has made a concerted effort to populate the ADC Map field with the 2001 to 2006 ADC Map Book locations. The DEP's effort specifically focused on those facilities that lack the Maryland grid coordinates since the MDE is using ADC Mapbook locations if the Maryland grid coordinates are missing. The DEP will continue to default to populating the ADC Mapbook field when the MD grid coordinates are not available. The ADC Mapbook locations will once again need to be updated beginning with the release of the new ADC Mapbook (2007) which has changed the reference grid system. The DEP anticipates this update will take approximately three years, as the data will be updated as inspections occur.

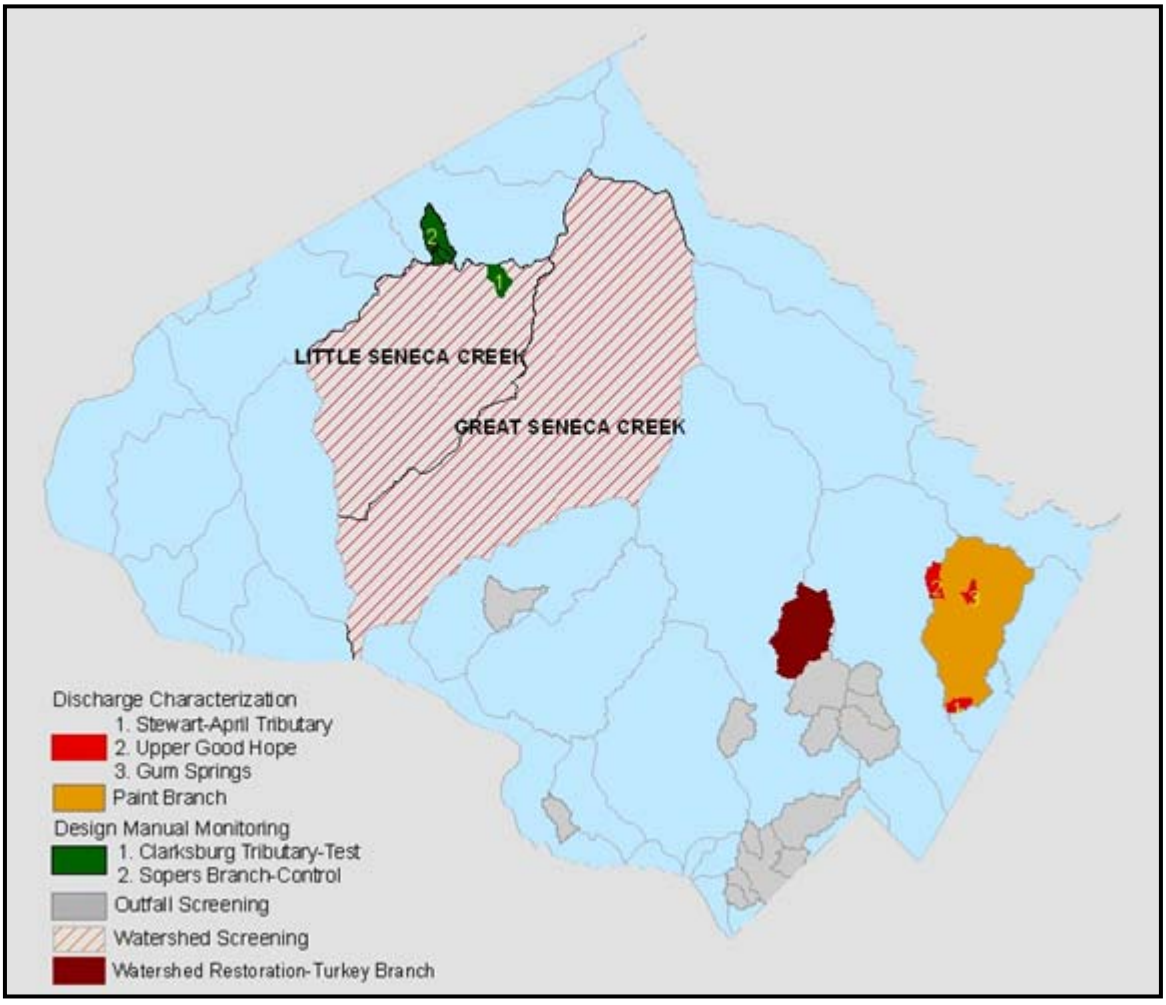
For its own internal tracking, the DEP is using latitude and longitude collected via GPS during inspections. These are more standard location references than the ADC Mapbook locations or the Maryland grid coordinates. These are also more useful in compiling the BMP information needed for the Chesapeake Bay restoration effort, which also includes Virginia, the District of Columbia, Pennsylvania, West Virginia, Delaware, and New York. For the next permit cycle, Montgomery County recommends again that the MDE use latitude and longitude as the primary location reference in the Urban BMP database.

Table III-C1. Total Number of Stormwater Facilities by Structure Type Designation			
DEP Structure Type	**DEP Structure Type Description**	**MDE Structure Type**	**Total Number**
AQFIL	Aquafilter	O	4
AQSW	Aquaswirl	O	5
BAYSAV	Baysaver	BS	41
BR	Bioretention, quality control	BR	59
BRQN	Bioretention, quantity control	BR	1
DS	Dry Swale	AS	2
FS	Flow Splitter, Aboveground	FlSp	248
FSU	Flow Splitter, Underground	FlSp	121
INF	Infiltration trench, quality control only	IT	297
INFC	Infiltration trench and structural chamber system, quality control only	IT	1
INFIL	Infiltrator	IT	3
INFQN	Infiltration trench, quality and quantity control	IT	55
INFU	Infiltration trench, quality control underground	IT	128
INFUQN	Infiltration trench, quality and quantity buried, non-surface fed	IT	14
PDIB	Pond-infiltration basin, quality control only	IB	22
PDIBQN	Pond-infiltration basin, quantity control only	IB	33
PDQN	Pond-dry, quantity control only	DP	439
PDQNED	Pond-dry, quantity control and extended detention	EDSD	44
PDQNSF	Pond-dry, quantity control and sand filter base	DP	91
PDWD	Pond-wetland only	SM	12
PDWDED	Pond-wetland, extended detention	SM	97
PDWT	Pond-wet, quality control only	WP	43
PDWTED	Pond-wet, extended detention	EDSW	154
PDWTQN	Pond-wet, quantity control only	WP	4
PDWTQNED	Pond-wet, quantity control and extended detention	EDSW	3
PSF	Peat sand filter	SF	1
SEP	Oil/grit separator	OGS	706
SEPSF	Oil/grit separator and sand filter	OGS	92
SF	Sand filter	SF	238
SFQN	Sand filter, quantity control only	SF	23
SFU	Sand filter, underground	SF	37
STC	Stormceptor	SC	200
STFIL	Stormfilter	O	29
UG	Underground detention	UGS	229
UGINF	Underground with a stone bottom	UGS	13
VORTEC	Vortechnics	O	1
		Grand Total	**3490**

D. Discharge Characterization

The permit requires that "Montgomery County shall contribute to Maryland's understanding of stormwater runoff and its effect on water resources by conducting a monitoring program." The locations of the County stations and watersheds in which Permit-required monitoring took place during the year 2006 are shown in Figure III-D1. These include the Paint Branch stations for discharge characterization, the control and test subwatersheds for the design manual monitoring, the watersheds targeted during the outfall screening program, the watersheds screened during the countywide stream monitoring, and the Turkey Branch subwatershed, the first one selected to meet the impervious control goal.

Figure III-D1. Stations and Watersheds for Permit-Required Monitoring during 2006.



D1. Outfall and Instream Monitoring

During 2006, the DEP continued water chemistry monitoring at one outfall and one mainstem station in the Lower Paint Branch Watershed to meet the Permit requirements. The watershed boundaries and station locations are shown in Figure III-D2. The land cover characteristics are shown in Table III-D1.

A continuous recording rain gauge has been established approximately two miles north of the monitoring stations. Water chemistry monitoring stations were located on Stewart-April Lane Tributary and Paint Branch, below the confluence with the tributary. The Permit-required data are included in the database on CD in Attachment A. The summary report of baseflow and stormflow concentrations and storm loads is included electronically in Attachment A and as hard copy in Attachment B.

Figure III-D2. Long-Term Discharge Characterization Stations during 2006 in the Paint Branch Watershed.

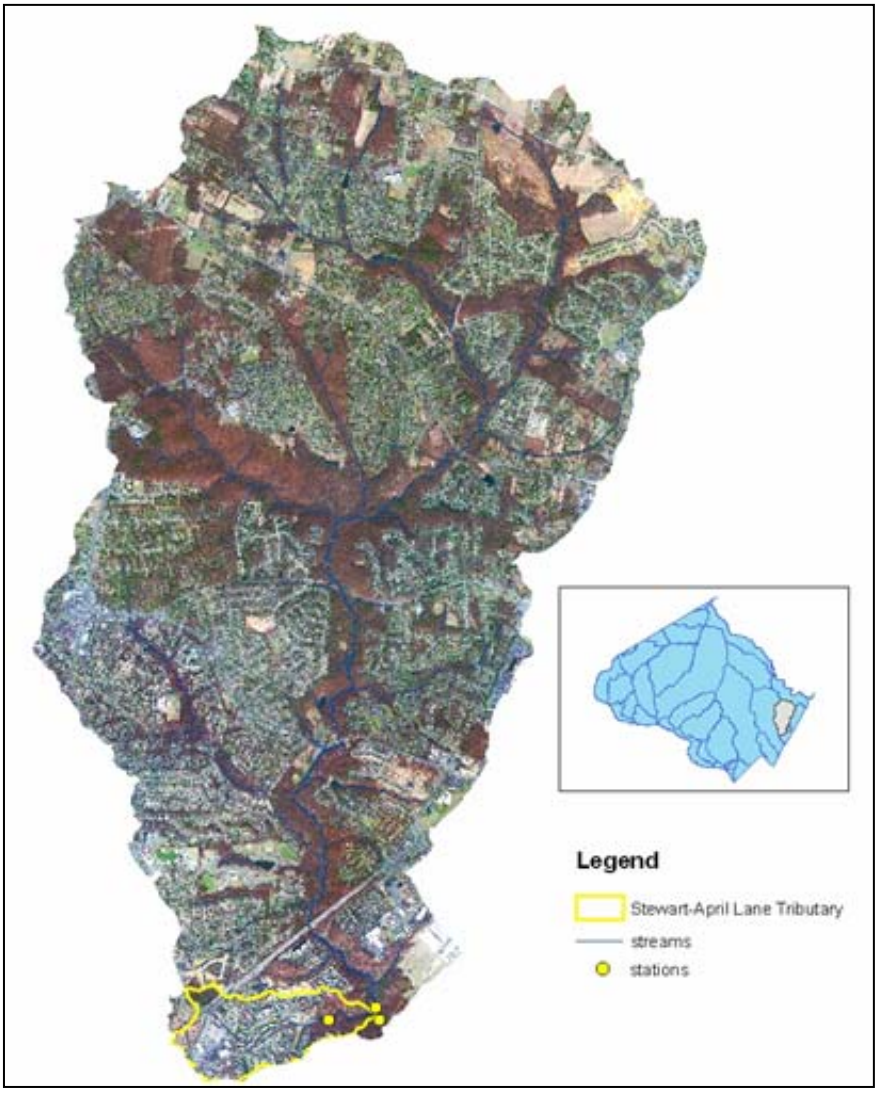
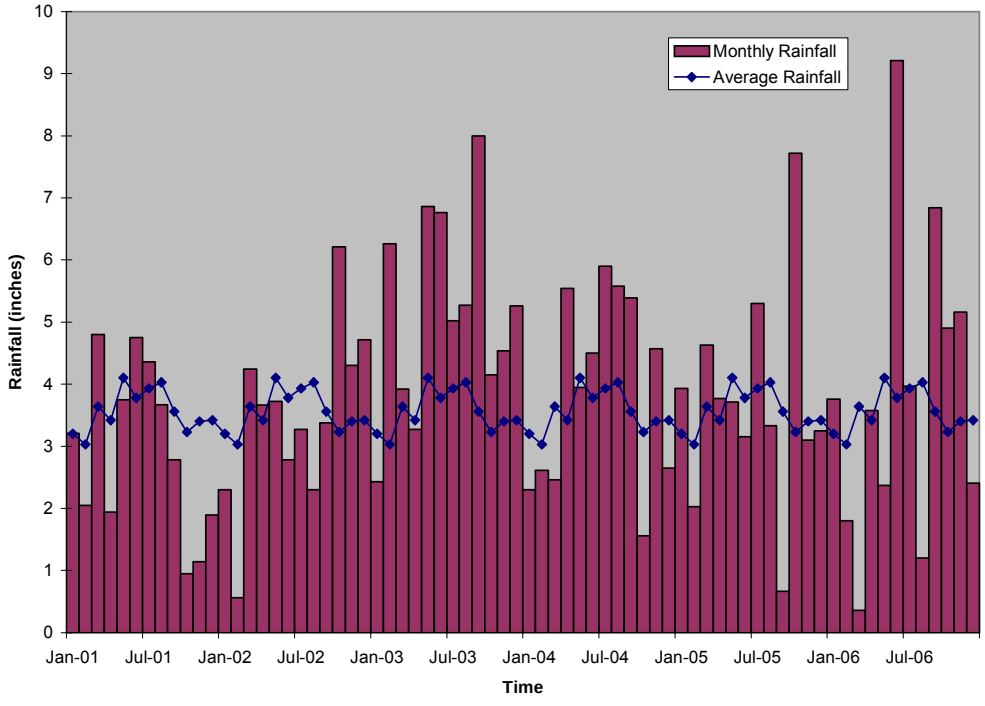


Table III-D1. Drainage Area Land Cover in the Long-Term Discharge Characterization Watershed.						
Drainage Area	**PERCENT**				**Total Acres**	**Stream miles**
	Impervious	Woods	Cropland	Lawn/ Open Land		
Outfall: Stewart-April Lane Tributary	38.7	21.3	0.0	40.0	223.4	0.6
Instream: Paint Branch Mainstem	13.0	26.6	3.4	57.0	7,734.0	31.5

Rainfall

Precipitation in Maryland during 2001 through 2006 varied widely from year to year and from season to season as shown in Figure III-D3. Average annual precipitation over this six-year period was about 7% above normal. This period began with two below-normal rainfall years in 2001 and 2002, including an extended drought from spring 2001 to October 2002, resulting in record low discharges in the Potomac River and other area waterways. In contrast, the record high precipitation during 2003 produced record high discharges in these same water bodies. Rainfall during October 2005 was over four inches higher than normal due to the contribution by remnants of Tropical Storm Tammy. Rainfall during 2006 was generally below normal except for the June monthly total which was augmented by a persistent wet weather pattern during the final week caused by a stationary front. High flows during this time caused significant changes in the stream channels at both monitoring sites.

Figure III-D3. Average and observed monthly precipitation (inches) in Maryland 2001-2006. Northeast Regional Climate Center, 2007. Statewide average.



Hydrology Modeling

The Permit requires that a model be conducted to evaluate rainfall to runoff characteristics of the contributing watershed. The U.S. Army Corps of Engineers (USACE) completed the hydrology model for existing and proposed retrofit construction runoff characteristics at the Stewart-April Lane Tributary and submitted these results as part of the Water Quality Certification Process.

Change to Source Control Approach

During 2006, the DEP recommended that the USACE discontinue the pond retrofit at this site given the tree save concerns coupled with the low water quality volume and channel protection volume that would be provided. The letter from the DEP Director to the USACE to confirm this approach is included electronically in Attachment A..

The DEP is now focusing on a source control approach to controlling pollutants from this drainage area. The DEP received a $500,000 EPA award, through Prince George's County Department of Environmental Resources, to focus on reducing pollutants and trash entering the Anacostia. One element of this pilot project is the design, implementation, and monitoring of structural and operational best management practices to control trash and associated pollutants in the White Oak subwatershed in Lower Paint Branch Additional details can be found in Section III-E.

Water Chemistry

The mean storm event mean concentrations (EMCs) and baseflow mean concentrations (MCs) for nutrients, suspended solids, and indicator metals for both the outfall and instream station are shown in Table III-D2. For the five-years of monitoring from 2002-2006, the storm event EMCs and the baseflow MCs for nutrients and the storm event total suspended solids (TSS) were higher in the Paint Branch mainstem than from the Stewart-April Lane tributary. The pattern for the metals was reversed, with higher values in the discharges from the Stewart-April Lane tributary.

Table III-D2. Storm Event Mean Concentrations (EMCs) and Baseflow Mean concentrations (MCs) in mg/L in Stewart-April Lane Tributary (outfall station) and Paint Branch (instream) for 2002-2006.

Analyte	Storm EMC		Baseflow MC	
	Stewart-April Lane Tributary	Paint Branch	Stewart-April Lane Tributary	Paint Branch
Total Nitrogen (TN)	1.537	2.064	2.471	2.707
Total Phosphorus (TP)	0.130	0.295	0.006	0.011
Total Suspended Solids (TSS)	60.7	293.5	6.0	5.1
Zinc (ZN)	0.054	0.048	0.013	0.005
Copper (CU)	0.030	0.024	0.012	0.008

The baseflow MCs of TN in both Stewart-April Lane Tributary and Paint Branch were higher than corresponding storm EMCs. A component of TN concentrations in streams is nitrate, which is highly mobile and is commonly found in high concentrations in groundwater that supplies baseflow in streams. The higher baseflow values were probably due to less development and greater proportion of pervious land in the Paint Branch drainage which provide more direct pathways for nitrogen migration to groundwater than in the highly developed, highly impervious Stewart-April Lane drainage

The pattern for baseflow to storm event TP was the opposite that of TN. The TP baseflow concentrations were lower than storm flow concentrations at both stations. Baseflow concentrations of phosphorus at both stations were nearly always below the reportable detection limit of 0.05 mg/L in 2002-2006. Storm EMCs for total phosphorus at Paint Branch were higher than corresponding concentrations at Stewart-April Lane Tributary, probably due to the higher proportion of lawns and turf areas in the Paint Branch watershed as a whole. Fertilizers and automobile detergents are major sources of phosphorus, which tends to bind to sediment particles.

The general pattern for TSS was the same as for phosphorus--higher during storm events than baseflow. Baseflow MCs of TSS were higher at Stewart-April Lane Tributary than at Paint Branch. Conversely, storm EMCs of TSS tended to be higher at Paint Branch than at Stewart-April Lane Tributary during 2002-2006.

Storm EMCs for zinc (ZN) and copper (CU) were higher at Stewart-April Lane Tributary than at Paint Branch. Baseflow ZN and CU were likewise higher at the tributary, likely related to potential sources from the more urbanized drainage area. The large amount of residential and commercial parking areas in the contributing drainage were implicated as potential sources of these pollutants carried by storm water runoff. Storm EMCs for both pollutants were higher than corresponding baseflow MCs at both stations. A Mann-Kendall test for trend (Hirsch et al., 1992) of Stewart-April Lane Tributary ZN results over time showed a significant decreasing trend in concentrations during baseflow, and during storm event rising and peak limb portions of the hydrograph. CU data showed no trend.

Biological and Habitat Monitoring

To date, DEP has seven years of pre-construction data at the Stewart-April Lane tributary station (PBPB104) and four years of data at mainstem lower Paint Branch stations PBPB309B (upstream of the tributary) and PBPB310A (downstream of the tributary). As shown in Table III-D3, this includes fish for 1995 and benthic macroinvertebrate data for 1995 and 1996 for PBPB104, and fish and benthic macroinvertebrate data for 2001, 2002, 2003, 2004, and 2005 for all three stations. Detailed analysis is deferred until after the planned water quality improvements are finalized.

Table III-D3. Biological Results for Pre-Implementation (1995-2006) Long-Term Discharge Characterization						
YEAR (Pre-Implementation)	**PBPB104 Tributary**		**PBPB309B Upstream**		**PBPB310A Downstream**	
	Fish	**Benthic**	**Fish**	**Benthic**	**Fish**	**Benthic**
1995	No Fish	X				
1996		X				
2001		X				
2002	No Fish	X	X	X	X	X
2003	No Fish	X	X	X	X	X
2004	No Fish	X	X	X	X	X
2005	No Fish	X	X	X	X	X
2006		X	X	X	X	X

Table III-D4 shows the rapid habitat assessment parameters that scored less than good at each station. The rapid habitat assessment rated overall "Good" at PBPB309B and PBPB310A, and improved from 'Fair' to "Good\Fair" for the tributary PBPB104. The tributary station PBPB104, had improvements in embeddedness, sediment deposition and riffle frequency scores, which would account for change in overall narrative.

Figure III-D4 compares graphically the habitat ratings with those for the biological community for the 2006 sampling. The benthic macroinvertebrate community was fair for PBPB309B and PBPB310A, and "Poor" for PBPB104. While the fish community was good for both PBPB309B and PBPB310A, there were no fish caught in PBPB104 and therefore a poor rating was calculated.

Table III-D4. Rapid Habitat Assessment Parameters with Low Scores in 2006 for Long-Term Discharge Characterization	
PBPB104	**Stewart April Lane Tributary:** Instream cover (4 out of 20), Channel Flow (6 out of 20), Bank Vegetation (4 out of 10) Bank Stability (3 out of 10)
PBPB309B	**Paint Branch mainstem, upstream of PBPB104 confluence:** Instream cover (8 out of 20), Embeddedness (8 out of 20), Sediment Deposition (8 out of 20)
PBPB310A	**Paint Branch mainstem, downstream of PBPB104 confluence:** Instream cover (7 out of 20), Embeddedness (8 out of 20), Right Bank Stability (2 out of 10)

Figure III-D4. Long-Term Discharge Characterization Biology and Habitat Conditions in 2006. ***Line shows expected direct correspondence between biological and habitat conditions.***

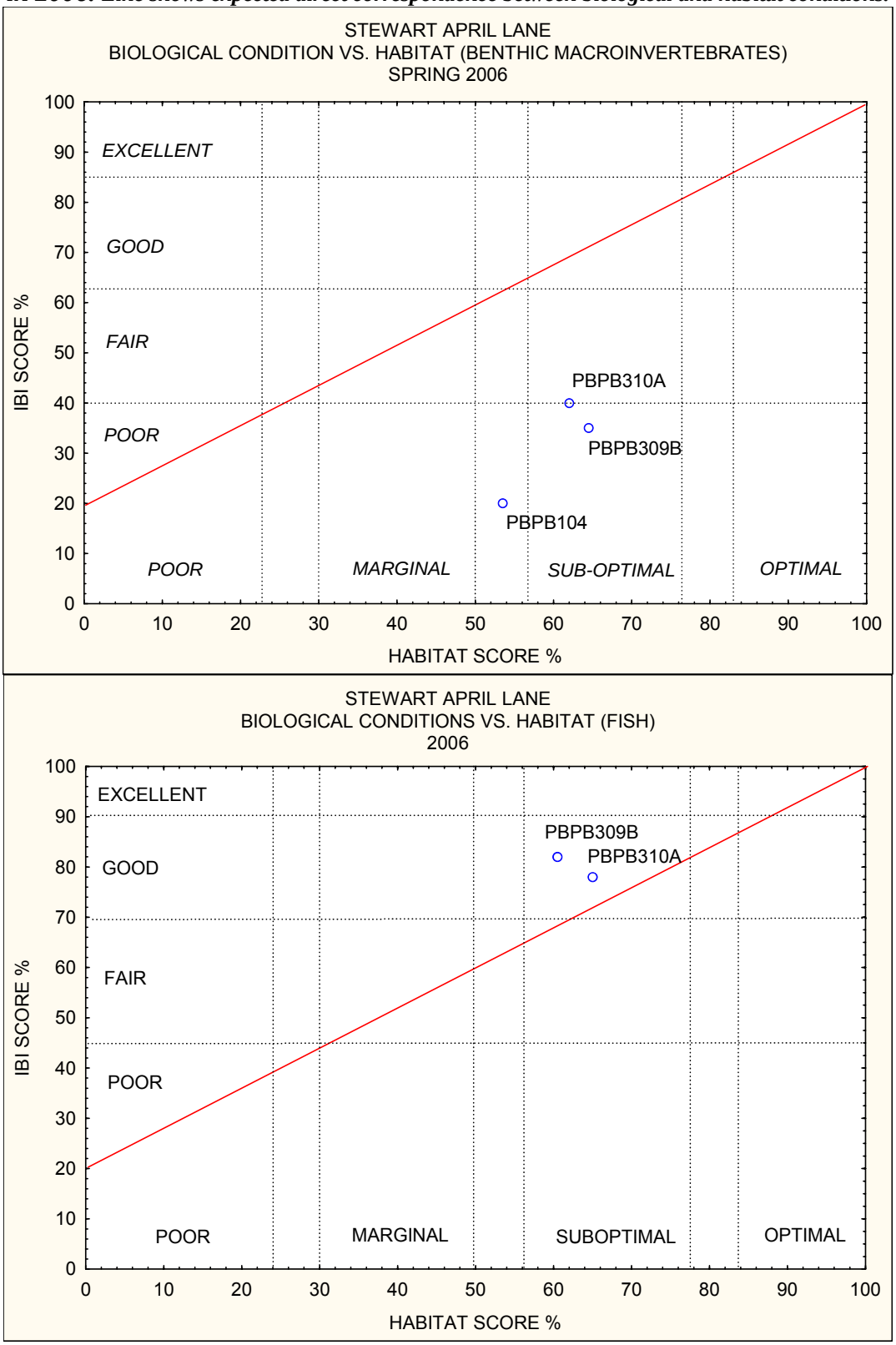


Table III-D5 shows results from the water chemistry and physical parameters monitored at the time of the biological sample collections. The conductivity values during the spring in the Stewart-April Lane Tributary were higher than at the mainstem stations. There was also some dissolved oxygen depletion in the spring with 78% saturation, compared to a desired >80% saturation. Since PBPB104 tributary was not sampled for fish in 2006 there were no water chemistry readings collected.

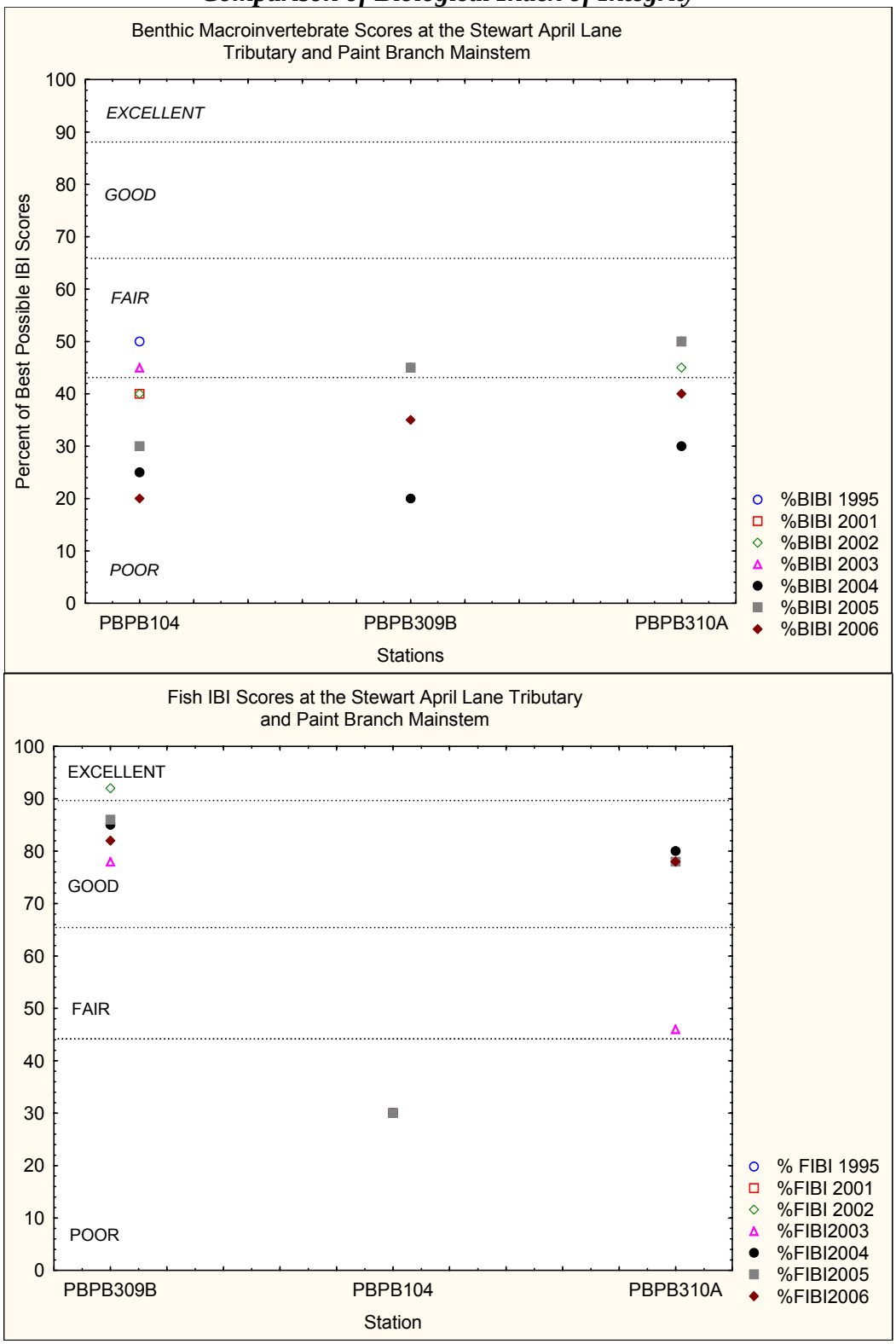
Figure III-D5 summarizes biological conditions based on year monitored during 1995 through 2006. From 2005 to 2006, PBPB104 was "Poor" in the benthic macroinvertebrate community, while PBPB309B and PBPB310A dropped from "Fair" in 2005 to a "Poor" rating in 2006. The fish community rating remained the same for station PBPB309B and PBPB310A as "Good". PBPB104 was not sampled for fish in 2006.

Table III-D5. Water Quality Measurements in 2006 for Biological Monitoring Stations for Long Term Discharge Characterization

STATION	**PBPB104 (tributary)**		**PBPB309B (upstream)**		**PBPB310A (downstream)**	
TYPE	Benthic	Fish	Benthic	Fish	Benthic	Fish
DATE	3/15/2006		3/15/2006	7/12/2006	3/15/2006	7/12/2006
Dissolved Oxygen (> 5 mg/l)	8.7	*	10.2	7.98	10.75	8.49
% Dissolved Oxygen Saturation	78	*	90	93	96	90
PH (6.5-8.5)	6.73	*	7.15	7.4	7.25	7.11
Conductivity (<= 300 umhos)	529	*	163	170	163	180
Air Temperature (deg C)	14	*	14	27	12	19
Water Temperature (deg C)	10.6	*	10.1	23.2	10.5	12.8

* PBPB104 was not monitored for fish in 2006

Figure III-D5. Long-Term Discharge Characterization (1995-2006)
Comparison of Biological Index of Integrity



Benthic Community Structure and Function Differences

Eight measurements of community structure and function make up the DEP's Benthic Index of Biological Integrity (BIBI). These include functional feeding groups (FFGs), taxa richness, diversity, composition, and pollution tolerance. Each measurement responds in a predictable way to increasing levels of stressors. Examining the details of the benthic communities provides more information on possible impairing factors than available just from the BIBI score.

Functional Feeding Groups

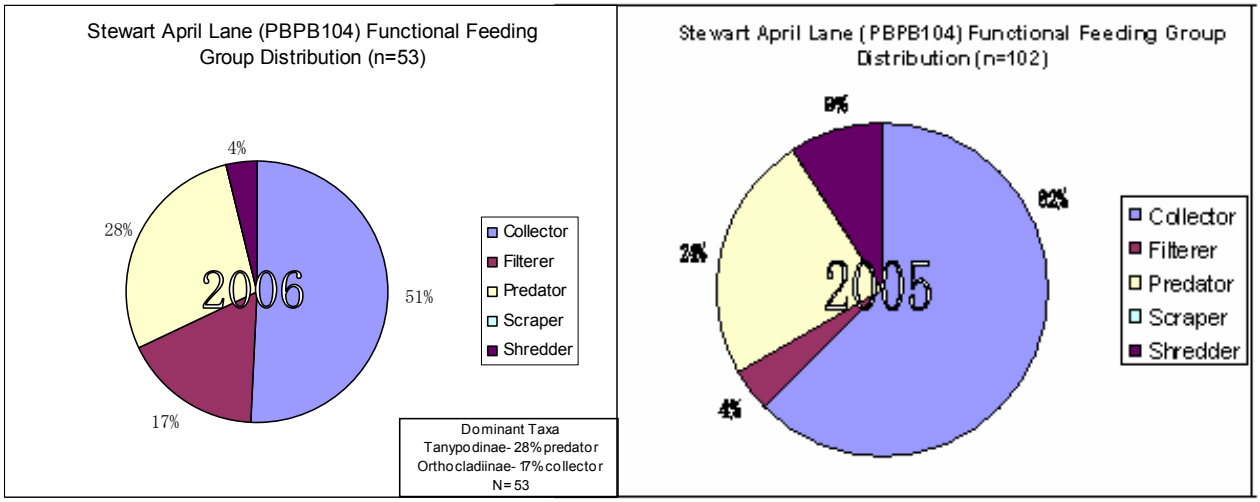
The FFG classifications are ecological classifications that distinguish benthic macroinvertebrates based on how they process food (Camann, 2003 and Cummins in Loeb and Spacie, 1994). The five FFGs usually examined in a bioassessment are collector gatherers, filtering collectors, shredders, scrapers, and predators. Collectors are the most generalized and usually most abundant FFG because their food source of fine particulate organic matter is abundant. Shredders reduce coarse material (like leaves) into fine material which can then be transported downstream for use by collectors. Shredders actually use the fungi and bacteria present on leaf surfaces for food, breaking the leaf into smaller fragments in this process. Other FFGs include scrapers and predators. Scrapers scrape and graze on the diatoms and on other algae that grow attached on exposed surfaces. Predators attack and consume other insects and macroinvertebrates.

The FFGs in the Stewart-April Lane tributary (PBPB104) are compared to those in Gum Springs (PBGS111) for 2005 and 2006 in Figure III-D6. The Gum Springs station is in a first order stream in the Upper Paint Branch, and with significantly less contributing impervious area than in the Stewart-April Lane tributary (less than 15% versus about 39%). The BIBI ranking in the Gum Springs has been consistently in the good range since it was first monitored.

In 2006, the benthic macroinvertebrate community at PBPB104 was comprised of 51% Collectors, 28% Predators, 17% Filterers and 4% Shredders. In contrast the PBGS111 station was composed of 41% Filterers, 28% Collectors, 23% Shredders, 7% Scrapers and 1% Predators. The dominant FFGs in first order headwater streams are typically shredders and collectors. Note that both stations show significant change in the Functional Feeding groups from 2005 to 2006.

The FFGs diversity at the Paint Branch mainstem stations (PBPB309A and PBPB310B) is shown in Figure III-D7 for both 2005 and 2006. Collectors and scrapers are the expected dominant FFGs in higher order streams. The dominant FFGs for the PBPB301B station are the Collector and Filterer. This is a significant change from 2005 when 34% was Collector as to 51% in 2006. In the downstream station PBPB310A, the dominant group during 2006 year were Collectors, in comparison to 2005 when the most dominant groups were the Filterer and Predator. Both sites show significant change in FFGs from year to year.

Figure III-D6. Comparison for 2005 and 2006 by percent functional feeding groups in two first order Paint Branch streams. ***Stewart April Lane Tributary: 39% impervious, Benthic Index of Biological Integrity poor. Gum Springs Tributary: less than 15% impervious, Benthic Index of Biological Integrity fair.***



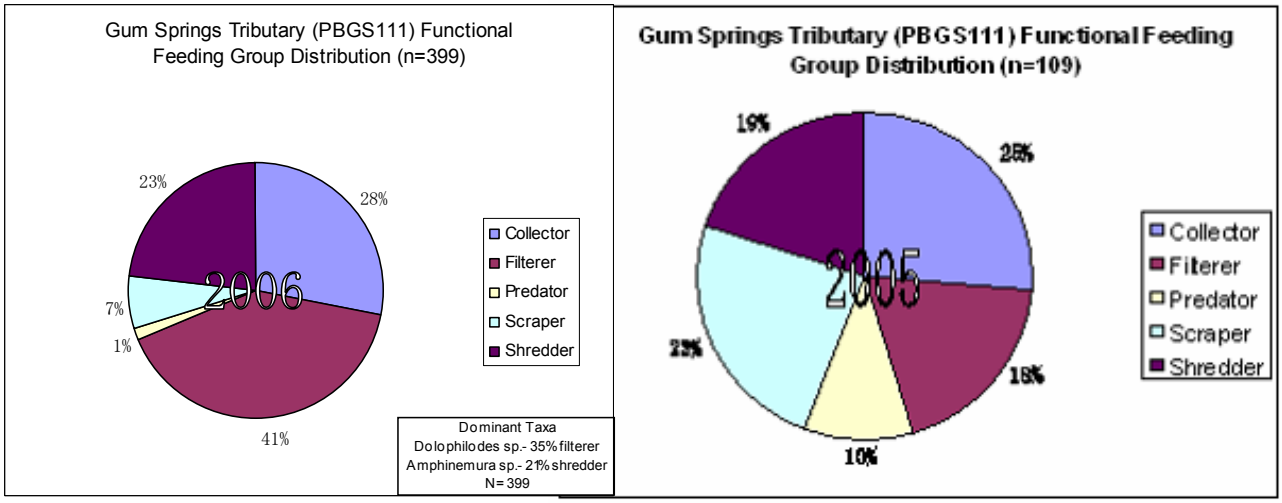
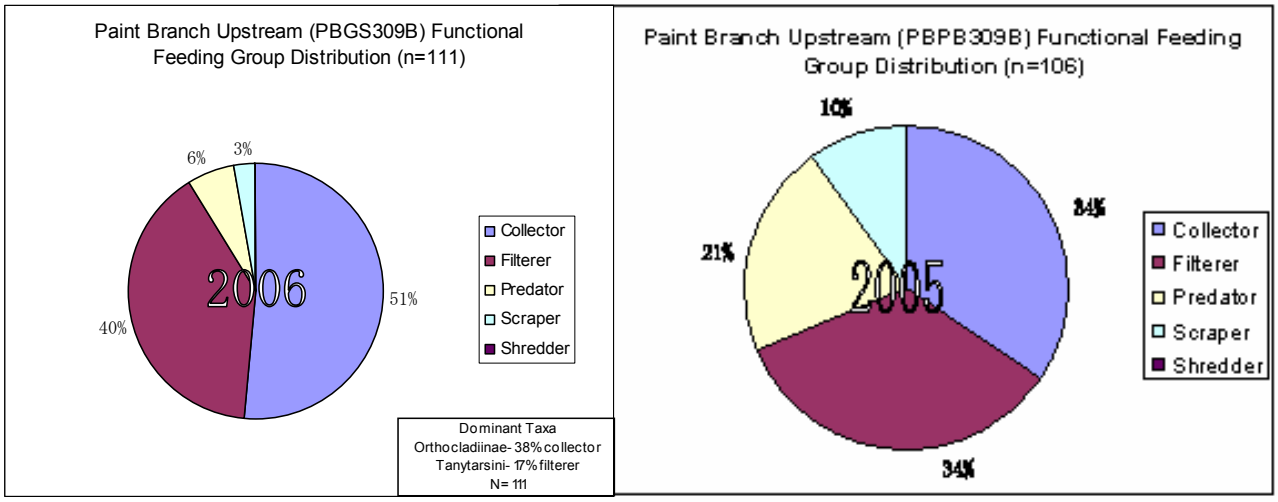
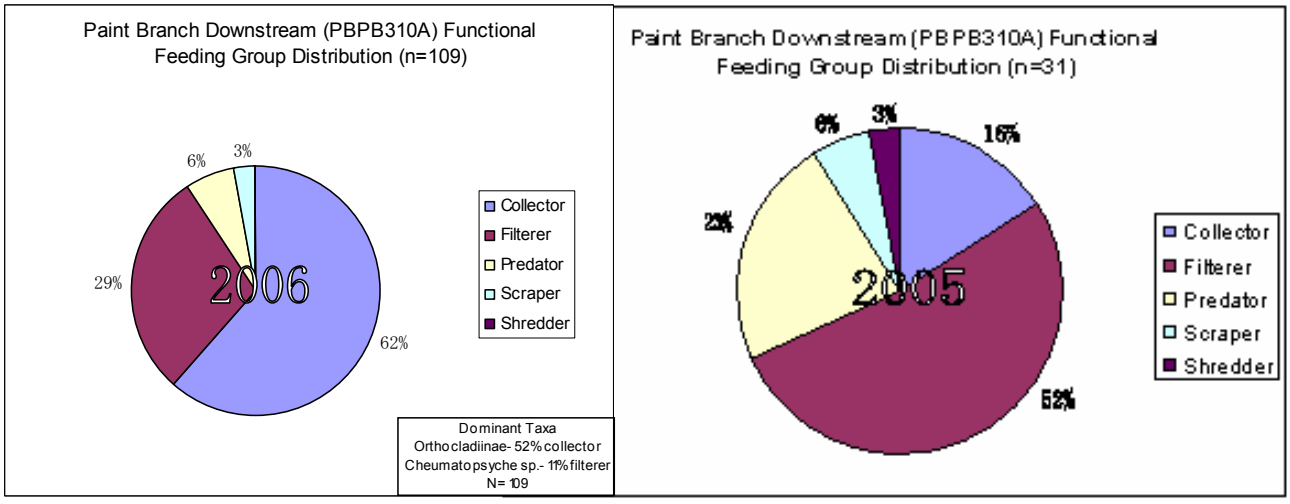


Figure III-D7. Comparison for 2005 and 2006 by percent functional feeding groups in mainstem Paint Branch upstream and downstream of the Stewart-April Lane Tributary. ***Percent impervious in contributing watershed about 13%. Benthic Index of Biological integrity dropped from fair in 2005 to poor in 2006 at both stations.***





Taxa Richness

Taxa richness reflects the number of different taxa found at a station, with more taxa showing a more diverse community. The average number of taxa found in the Stewart-April Lane tributary and in Gum Springs has decreased over the last year. Stewart-April Lane tributary has decreased from 12 taxa to 9 taxa and PBGS111 has decreased from 23 taxa to 20 taxa. The number of taxa in Stewart-April was consistently lower than that in Gum Springs and was also less than the mainstem station-16 taxa upstream and 14 taxa downstream.

Physical Stream Assessment

The Permit requires the County to conduct a geomorphologic stream assessment between the outfall and instream monitoring station. To examine stream morphology in the Stewart-April Tributary, the County has completed a longitudinal profile, two cross sections, pebble counts, sinuosity measurements, and slope calculations. Methods for this stream morphology study are the same as those found in the Stormwater Design Manual criteria section. These are preliminary results based on only two years of monitoring.

The longitudinal profile is shown in Figure III-D8 for a total length of 290 feet (20 bankfull widths). A reading was recorded at the start of each fluvial type, in addition, the maximum depth of the pools were recorded. Two cross sections have been established, one in a straight run and the other on a bend. Results are shown in Figure III-D9 for both Cross section 1 and 2.

Figure III-D8: Longitudinal Profile of Stewart April Lane (2006)

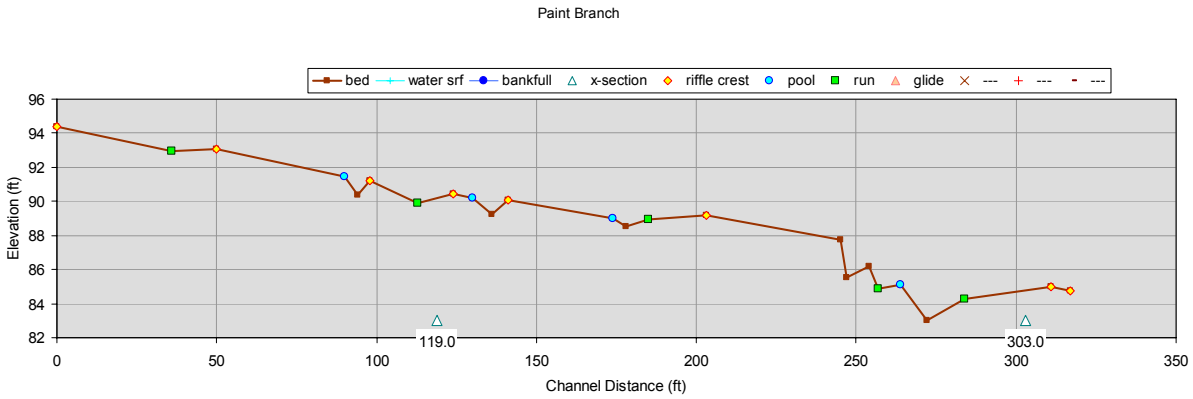
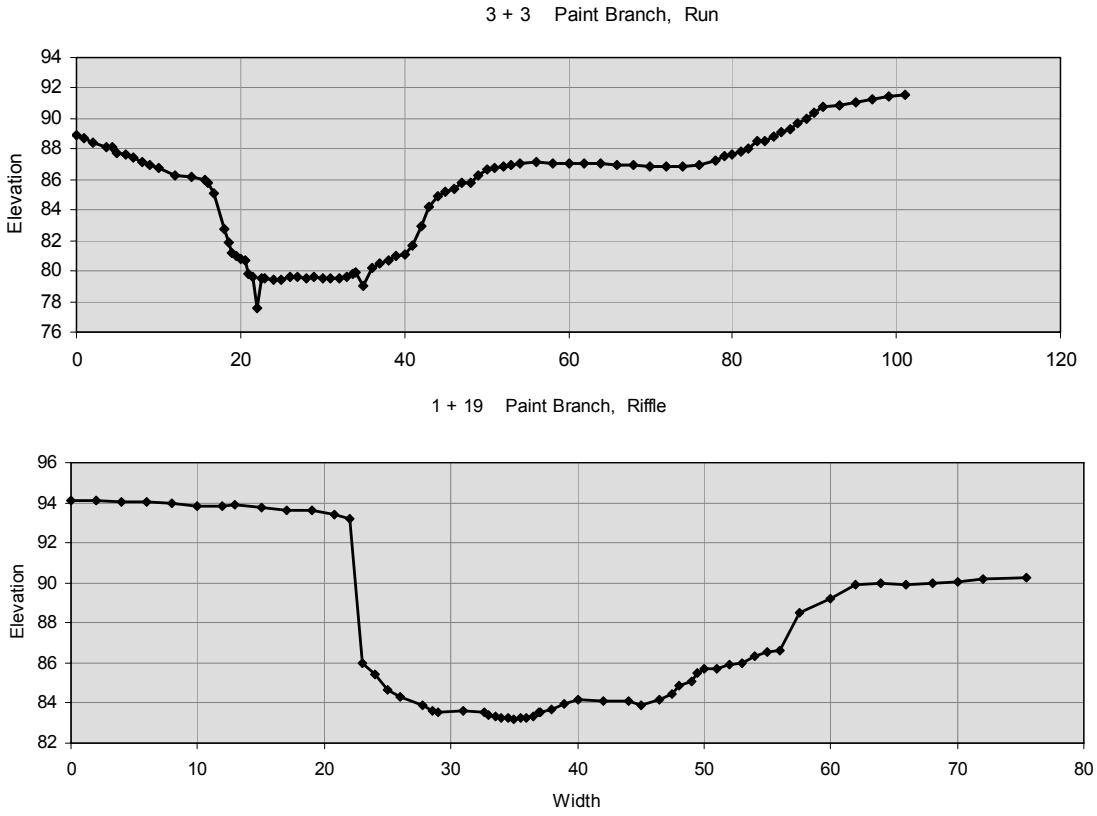


Figure III-D9. Cross-Sections 1 (run) and 2 (riffle) for Stewart-April Lane Tributary (2006)

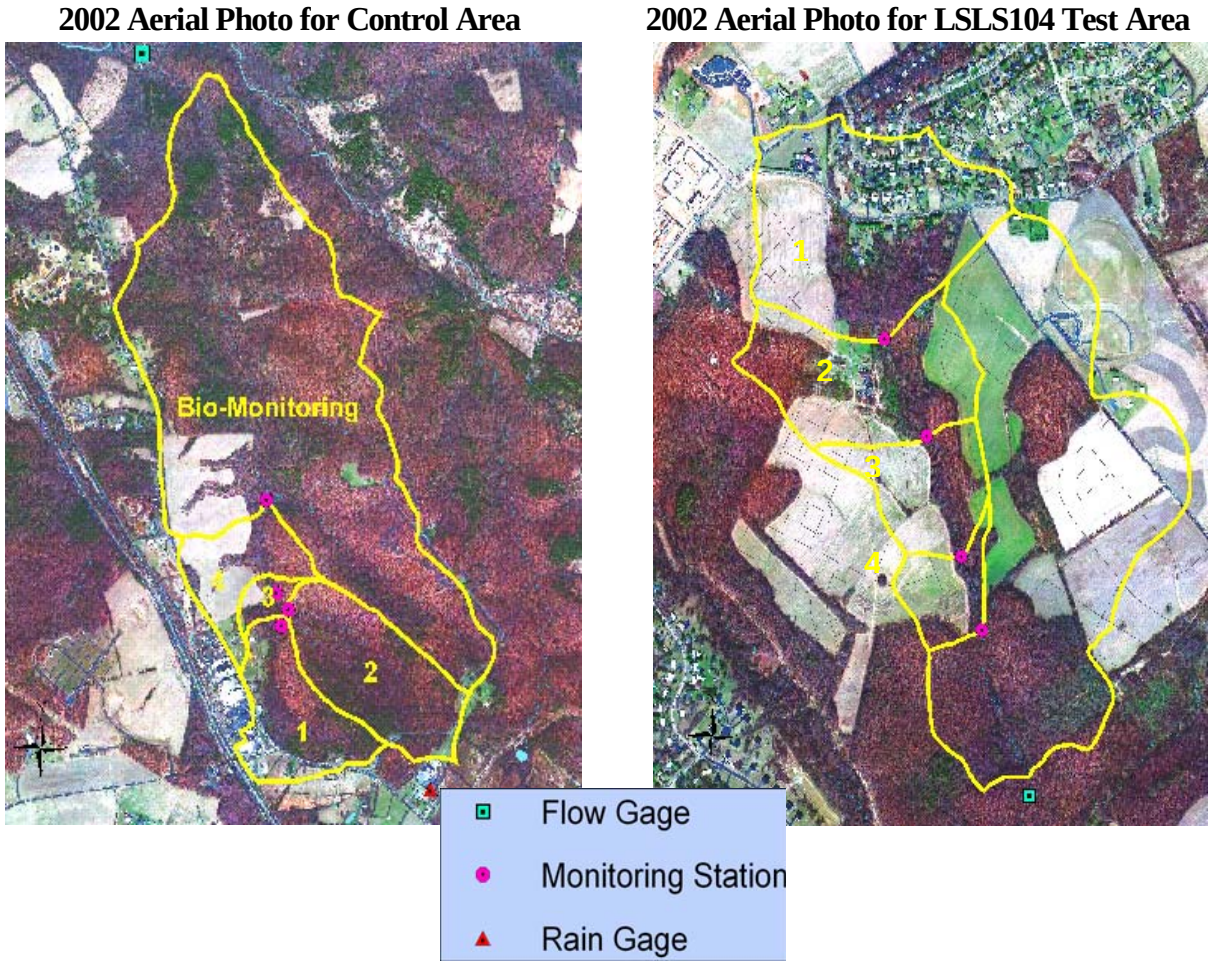


D2. Stormwater Design Manual Monitoring

The County's Permit requires monitoring to evaluate the effectiveness of the State's 2000 Stormwater Design Manual criteria in protecting the stream channel from development runoff impacts. The specific requirements are for cross-sections and longitudinal profiles and an assessment of any changes in rainfall to runoff patterns associated with changes in land cover of the contributing drainage area.

During 2006, the DEP continued monitoring in the Clarksburg area to assess impacts from new development on both stream morphology and aquatic communities. The DEP approach includes a "positive control" where the watershed will remain mostly forested to compare to a "test area" where development is occurring. Figure III-D10 shows the 2002 land cover and the drainage to the control and test areas. Soper's Branch (LBSB101) surrounded by County Parkland is the "positive control" and Little Seneca 104 tributary (LSLS104) surrounded by the Clarksburg growth area is the "test" area. The year 2002 was prior to development in the test area. Methods used were as described in the 2003 Annual Report for the NPDES MS4 permit.

Figure III-D10. Land Cover (2002) and Monitoring Stations in Sopers Branch Control and Little Seneca Test Areas for Design Manual Monitoring.



During the year 2006, there was an increase in the number of owner-occupied units in the test area as the third phase of development continued downstream on the eastern side. Forests were cleared, land grading continued, and more houses began to take shape. The sediment and erosion control devices on the eastern side of the test area were not yet all converted for long-term stormwater management. To the west of the Little Seneca tributary, the first roads were installed and land grading continued.

Preliminary Conclusions

The analysis of this data pertains to sediment and erosion devices as no stormwater management BMPs have been fully converted in 2006. Full conversion to SWM is still several years away, so conclusions are limited to the effectiveness of the sediment and erosion devices on stream morphology and biology. Observations on stormwater management effectiveness will begin after the developments in the drainage area of the test tributary are completed and the stream is monitored for about five years.

Results show the test and control tributaries respond differently to varying rainfall amounts. During smaller rainfall amounts, the flows in the control tributary are higher while in heavier rainfalls the test tributary is higher. The sediment and erosion controls at the test tributary will be examined in the next report to better understand their capacities during heavier rainfalls. The more frequent storm events are ones that typically reshape the stream's morphological features. Even the control tributary has changed over the past three years with little or no human influences. The majority of these morphological changes in the tributaries seem not to drastically affect the overall stream slopes or meandering patterns; however, changes in the fluvial features and cross sectional topology do occur. Most topological changes occurred at or below the one and a half year storm events. Even with those changes, the test's and control's streambed composition remained the same at all of the areas except in Test Area 1 whose surface shifted from coarse gravel to very fine sand. Though the particle size in the test area shifted, the overall cross sectional areas did not change. Furthermore, for the past four years, there appears to be no correlation between the changes in pebble size and cross sectional areas.

The biological communities in the test tributary continue to show signs of stress from the initial impacts of the development on the eastern side of the test tributary (Greenway Village). Preliminary results depict a degradation in the benthic macroinvertebrate communities most likely due to the construction operations now underway on the western side of the tributary. The most observable impact to the benthic community is a change in the dominant functional feeding group and the sensitivity of dominant taxa found there. The shredder community that feeds on leaf material has been greatly reduced, while the filterer and collector communities that feed off of particulates have increased dramatically.

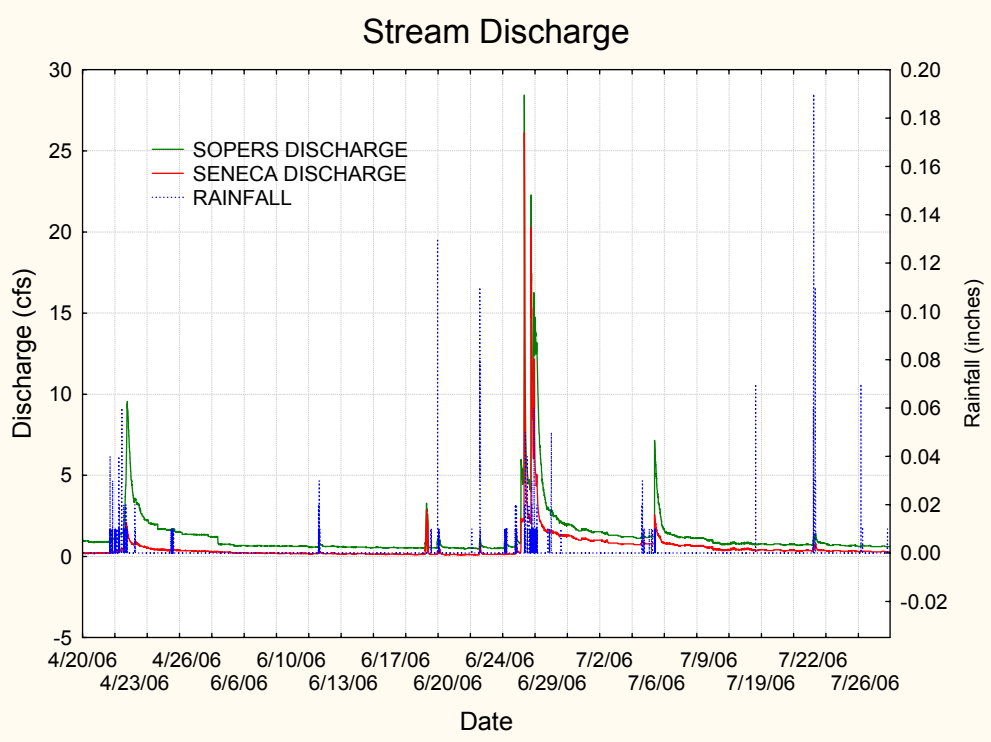
Currently, water temperature does not seem to be a factor in any biological stream impairments in either the control or test tributaries. Most likely, the forest buffer and spring seeps are the predominate contributors to regulating the summer water temperatures in the control tributary. With the rapidly developing test tributary, water temperature may play a larger role in the aquatic biota's survival due to land disturbances that may alter tree canopy and/or spring seeps.

Hydrology

Relationship between rainfall and flow gages

The DEP received the preliminary rating tables for the Test and Control Areas from USGS in 2006. In Figure III-D11, the discharge to rainfall relationship for the Control (Sopers Branch) and Test (Seneca) stream is compared for events from April through July 2006. While there is no clear-cut pattern in stream response, there are some preliminary results which indicate that the two areas respond differently to varying rainfall amounts. During smaller rainfall amounts, response is greater in the Control tributary than in the Test tributary but the reverse is true with heavier rainfalls, when the response in the Test tributary is higher. Additional analyses will occur as the DEP works with the USGS to refine the rating curves and the pattern of runoff to rainfall response.

Figure III-D11. Sopers Branch Control and Little Seneca Test Areas Stream Responses to Rainfall from April-July 2006



Stream Physical Characteristics

Cross Sections

As noted in the 2004 and 2005 reports, both the control and the test streams show change within the monitored cross section. The thalweg, or deepest portion of the stream, is shown to have decreased in some areas due to deposition, while in other areas it has increased due to scouring of the streambed. The calculated one and a half year storm event, labeled as bankfull in the figures, is depicted on the first cross section of each test and control area.

The elevation is permanently marked with rebar so that changes in the cross sections can be compared to the storm volumes that produce the channel changes. It appears that most, if not all, of the channel changes occur at elevations at or below the frequent storm level for both the control and test tributaries. The DEP will continue to examine the relationship between the one and a half year storm events and stream morphological changes.

Total cross sectional areas by year are shown in Table III-D6. Both tributaries reflect little or no drastic changes in the channel area. Further analysis of width and depth changes and other trends will be reported as the sediment and erosion devices are converted to stormwater management. It will take several post construction years of stream monitoring to fully understand the effects of development on stream morphology and aquatic communities.

Table III-D6: Total Cross Sectional Areas in feet square for the Test and Control Areas for the Design Manual Monitoring

	Cross Section 1 Area (ft^2)					Cross Section 2 Area (ft^2)				Cross Section 3 Area (ft^2)				Cross Section 4 Area (ft^2)			
Year	'02	'03	'04	'05	06	'03	'04	'05	06	'03	'04	'05	'06	'03	'04	'05	'06
Test Area 1	85	85	86	85	86	169	173	174	173	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Test Area 2	94	84	86	85	85	189	188	182	178	n/a	n/a	n/a	140	n/a	n/a	n/a	n/a
Test Area 3	45	44	44	43	42	59	57	57	58	71	76	71	73	31	25	26	31
Test Area 4	62	62	58	53	59	58	41	39	42	46	54	54	48	n/a	n/a	n/a	n/a
Control Area 1	n/a	55	57	60	59	134	142	142	140	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Control Area 2	n/a	38	38	38	39	72	60	59	60	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Control Area 3	n/a	114	121	115	115	161	169	169	170	77	84	83	83	n/a	n/a	n/a	n/a
Control Area 4	n/a	65	68	66	69	54	56	56	87	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a

In 2004, the DEP decided to extend cross section 2 in Test Area 4 to include an unnamed tributary that is receiving drainage from the Clarksburg development. This unnamed tributary is shown in Figure III-D12, flowing into LSLS104 approximately 25 meters downstream of the longitudinal profile for Test Area 4. As shown in reported in Figure III-D13, the total cross sectional area for the unnamed tributary has increased approximately 3 ft^2 since 2004.

Figure III-D12. Land Cover (2004) of Cross Section 2 Extension for the unnamed tributary to Test Area 4

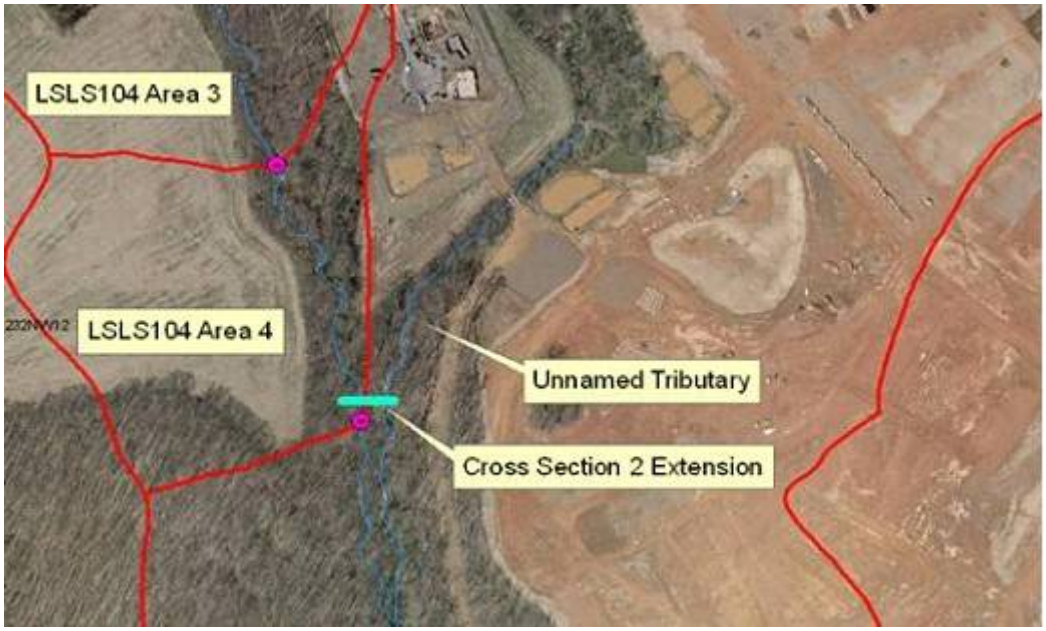
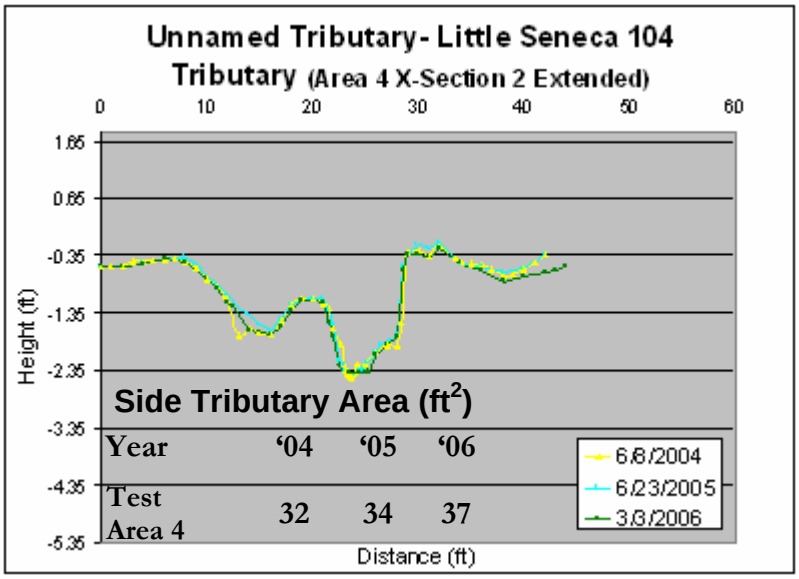


Figure III-D13. Cross-Section Profiles for 2004-2006 for LSLS104 Test Area 4



Longitudinal Profile

From 2003-2006, a change in riffle slopes in the longitudinal profiles for the test and the positive control sites was noted. Since riffles provide grade controls, an increase in riffle slope is an indication that the channel is adjusting to the overall increase in channel slope. Run and pool slopes are not expected to change as much as riffle slopes.

Comparing the starting and ending streambed elevations of the longitudinal profiles over time in Table III-D7, it appears from the overall elevations that test and control tributaries are both down-cutting. The exception is Control Area 3, which showed an average increase in elevation per year which is indicative of deposition.

Table III-D7. Streambed Elevations (feet) of the Longitudinal Profiles from 2003-2006 in the Test and Control Areas for the Design Manual Monitoring

Area	Year	'03	'04	'05	'06	average change per year
Test Area 1 (most upstream)	Top	96.08	95.67	95.81	95.94	-0.05
	Bottom	93.02	92.82	93.29	93.22	0.07
Test Area 2	Top	98.32	99.3	95.74	95.95	-0.79
	Bottom	95.73	97.3	93.65	93.53	-0.73
Test Area 3	Top	98.2	96.22	96.02	95.91	-0.76
	Bottom	95.42	93.95	93.26	91.9	-1.17
Test Area 4 (most downstream)	Top	99.34	99.16	98.04	98.62	-0.24
	Bottom	93.58	93.66	92.16	92.66	-0.31
Control Area 1 (most upstream)	Top	95.89	96.01	96.07	94.37	-0.51
	Bottom	93.35	93.79	93.88	92.46	-0.30
Control Area 2	Top	98.02	98.39	94.1	97.43	-0.20
	Bottom	95.31	95.18	90.95	94.27	-0.35
Control Area 3	Top	93.31	94.17	95.09	95.09	0.59
	Bottom	90.29	92.63	91.8	92.1	0.60
Control Area 4 (most downstream)	Top	96.31	94.21	95.3	94.35	-0.65
	Bottom	94.05	92.26	92.17	91.21	-0.95

Additional Analyses

Pebble Count

Pebble Count is a technique used to evaluate changes in substrate size characteristics over time. An increase in fine materials being deposited is frequently associated with active soil disturbance, either from construction or agricultural activity in the contributing watershed. As shown in Table III-D8, the median particle size, D50, has remained the same throughout most of the areas since 2005. Only Test Area 1 has had a drastic change in the median particle size, coarse gravel to very fine sand, indicating a shift to a depositional zone. One reason for this shift could be runoff of silt from active development taking place immediately adjacent to the site.

Table III-D8 MedianParticleSize (D50) in mm and Particle Type for 2003-2006 in the Test and Control Areas for the Design Manual Monitoring

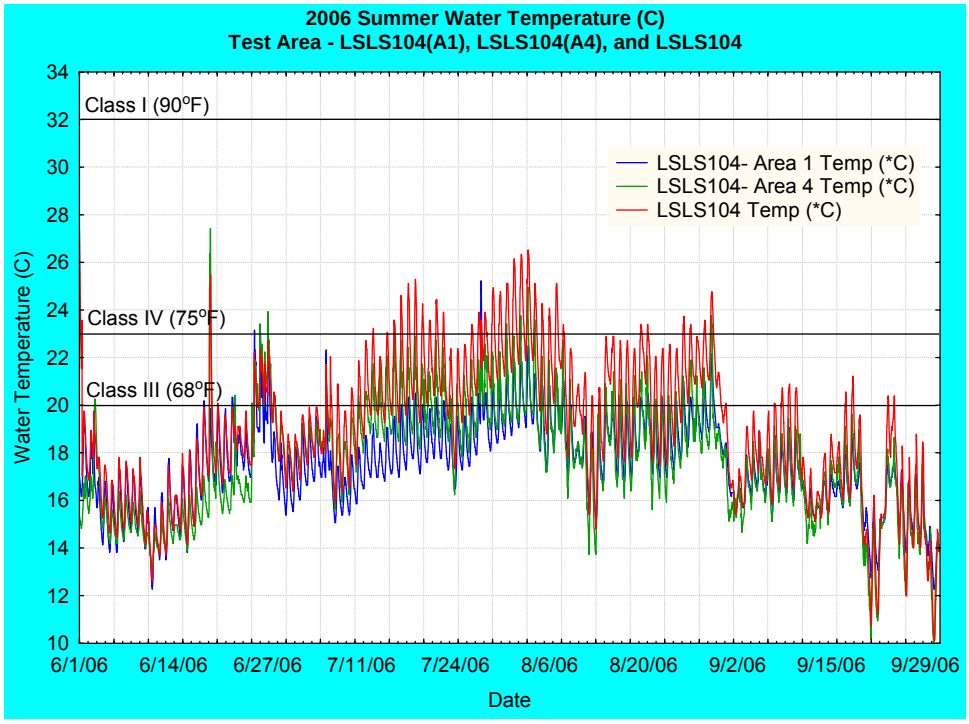
	D50 (mm)				Particle			
Year	'03	'04	'05	'06	'03	'04	'05	'06
Test Area 1 (most upstream)	2.5	9.5	21	0.062	Very Fine Gravel	Medium Gravel	Coarse Gravel	Very Fine Sand
Test Area 2	0.062	10	11	6	Silt/Clay	Medium Gravel	Medium Gravel	Fine Gravel
Test Area 3	0.062	7.4	3.2	6.9	Silt/Clay	Fine Gravel	Very Fine Gravel	Fine Gravel
Test Area 4 (most downstream)	8.2	5.7	5.7	7.1	Medium Gravel	Fine Gravel	Fine Gravel	Fine Gravel
Control Area 1 (most upstream)	8.4	8.3	18	4.8	Medium Gravel	Medium Gravel	Coarse Gravel	Fine Gravel
Control Area 2	8.9	8.9	8.2	10	Medium Gravel	Medium Gravel	Medium Gravel	Medium Gravel
Control Area 3	9.9	18	15	13	Medium Gravel	Coarse Gravel	Medium Gravel	Medium Gravel
Control Area 4 (most downstream)	16	0.062	8.7	14	Coarse Gravel	Silt/Clay	Medium Gravel	Medium Gravel

Water Temperature

In 2006, temperature meters were deployed in both the test and control areas to obtain water temperatures throughout the tributaries. Figures III-D14 and III-D15 show results from the summers of 2005 and 2006 for the LSLS104 Test Area and the Sopers Branch Control Area, respectively. Water temperature was above Maryland Use Class IV for approximately 4 days during August at Test Area 1 and for approximately 10 days at Test Area 4. The water temperature in the upper two Control Areas (1 and 2) was above Maryland Use Class III for approximately 4 days during July and August.

In 2005, the water temperatures at the most downstream for both the Test Area (LSLS104) and the Control Area (LBSB201) were typically at or below the Maryland Use Class III. However, during 2006, water temperature at Test Area 4 was significantly higher than at Control Area 4 and also remained above Maryland Use Class III for approximately 30 days. The Test Area also experienced an unusually high temperature event that began on June 19 at approximately 9:15 a.m. and peaked at about 80 degrees F (27.43°C) around 2 p.m. Base flow temperature returned to normal by approximately 6 p.m.

Figure III-D14. Summer Water Temperature (2005 and 2006) at the LSLS104 Test Area.



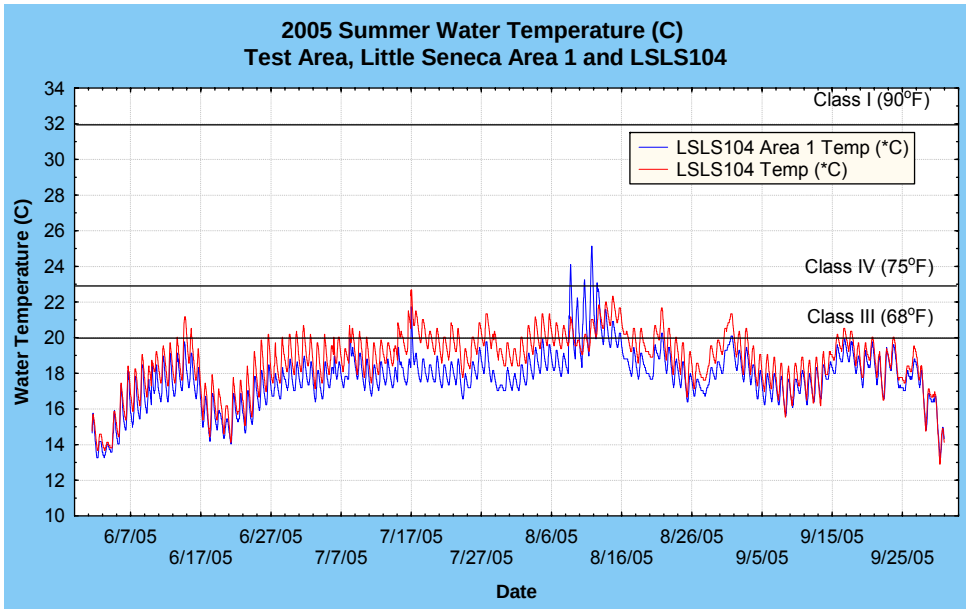
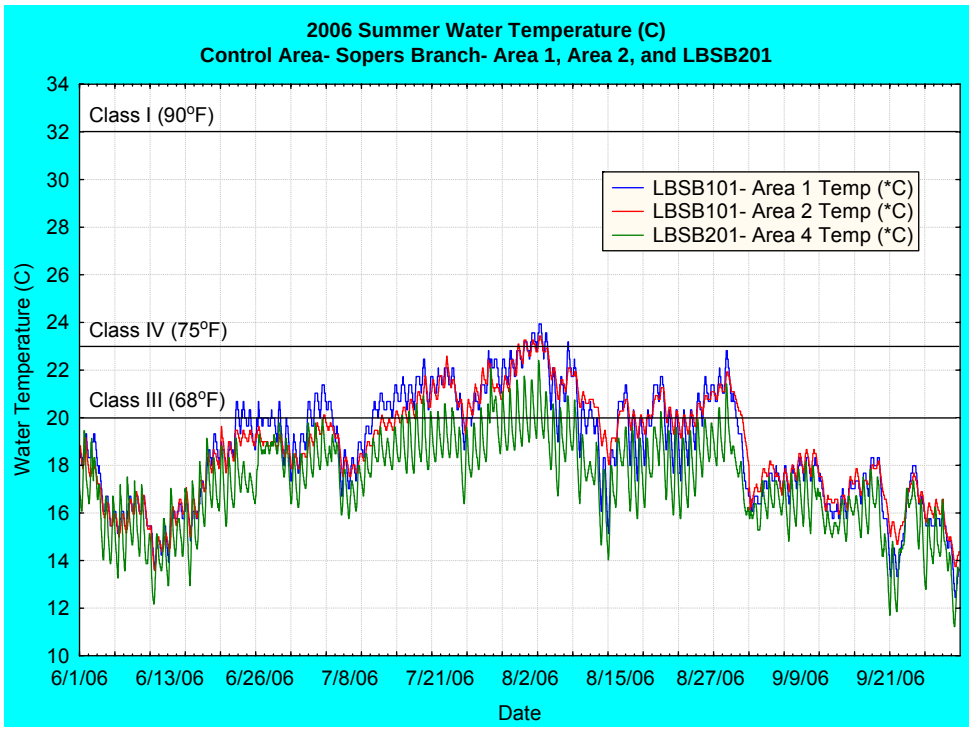


Figure III-D15. Summer Water Temperature (2005 and 2006) at the Sopers Branch Control Area



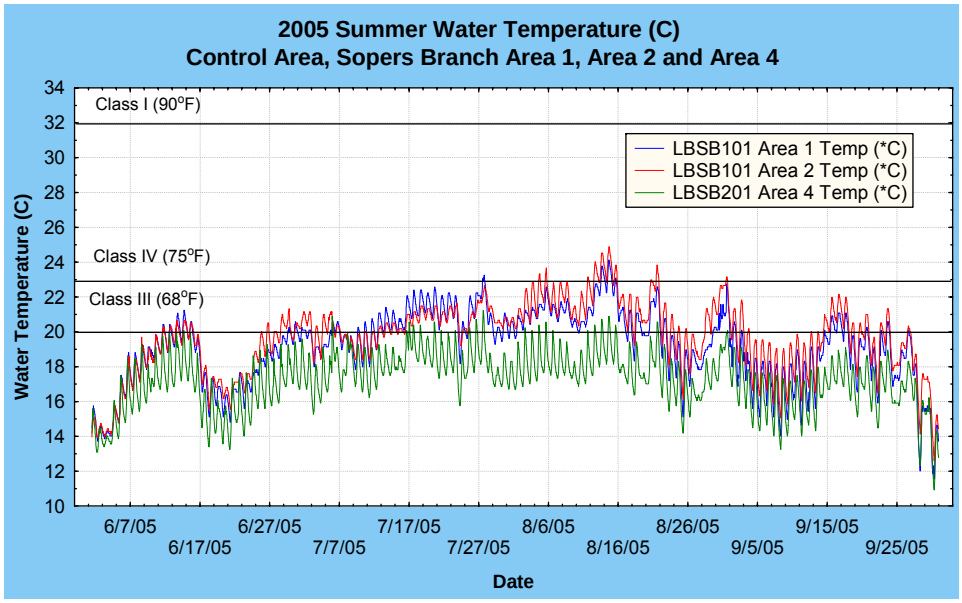


Photo Documentation

The geomorphological survey was scheduled in early spring beginning in 2006, rather than during summer when dense vegetation impaired the survey work. A secondary benefit was the improved level of detail in the photo documentation. For example, stream bank and top of bank condition as shown in Figure III-D16. In 2005, Area 2 of the control area was completely dry, but in 2006 there was flow, Figure III-D17. In test area 4, the stream has not changed drastically, but the tree that fell in 2005 just downstream of cross section 1 remained in place during 2006. Though not affecting base flow, it may impact the stream during a flood event.

Figure III-D16. Sopers Branch Control Area 1 Cross Section 1- Facing Upstream

Figure III-D17. LSLS104 Test Area 4 Cross Section 1 - Facing Downstream

Biology

In past reports, the County reported the changes on the biological community through an examination of changes in the calculated IBI scores. Table III-D9 shows the narrative biological conditions based on the IBI scores for the Test and Control Tributaries. The benthic narrative and fish narrative conditions have remained good to excellent from the year 2000 through 2006. This is in contrast to the pattern at the Test Tributary, which showed a decrease in the benthic from 'excellent' in 2000 to 'fair' in 2006.

Attachment A includes a more detail characterization of the biological community to better judge trends in stream resource conditions. For example, the relationship between the percent of sensitive taxa (EPT) and functional feeding group showed an obvious shift in the benthic community structure in the Test Tributary between 2004 and 2006. The sensitive taxa that once dominated this headwater stream have been replaced by more tolerant individuals with different functional feeding requirements. This change from a sensitive shredder community to a tolerant collector community accompanied significant changes in surrounding land uses.

Table III-D9: Narrative Biological Conditions (2000-2006) in the Test and Control Areas for the Design Manual Monitoring
(n/c=not conducted)

Station	Tributary Type	Year	Benthic Narrative	Fish Narrative
LSLS104 Little Seneca	Test	2000	Excellent	Fair
		2001	Good	n/c
		2002	Good	n/c
		2003	Good	Fair
		2004	Fair	n/c
		2005	Good	Good
		2006	Fair	Excellent
LBSB201A Sopers Branch	Control	2000	Good	n/c
		2001	n/c	n/c
		2002	n/c	n/c
		2003	Excellent	Good
		2004	Excellent	n/c
		2005	Excellent	Excellent
		2006	Excellent	Excellent

E. Management Programs

E1. Stormwater Management Program

Facility Inspections and Maintenance

In 2006, the DEP performed 1,449 initial inspections to assess the repair and maintenance needs of a stormwater management facility. Of the 1,449 inspections, 1,238 were at privately owned facilities and 211 were at publicly owned facilities. Table III-E1 shows the total number of initial inspections by facility type and ownership. The majority of the inspections occurred at three structure types--oil-grit separators (476), flow splitters (144), and Underground Storage (139). A majority of the inspections were completed by the DEP's contractor under the Stormwater Facility and Inspection Support contract, while a few inspections were completed by the DEP's Stormwater Inspectors or Senior Engineer. These initial inspections identified the need for repair at approximately 38% of all structures--about 97% of the aboveground structures and 10% of the underground structures. In contrast, during 2005, initial inspections identified that a repair was needed at 91% of the aboveground structures and 26% of the underground structures.

Aboveground facilities include ponds, infiltration trenches, infiltration basins, filtration basins, and filtration devices (bioretention and surface sand filter). Underground structures include all structures located physically underground such as oil-grit separators, underground sand filters, underground infiltration, and underground storage facilities. In 2006, there were 303 inspections at aboveground facilities and 41 inspections at belowground facilities related to public complaints, follow-up inspections, and inspections at facilities being considered for transfer into the DEP's Stormwater Facility Maintenance Program (SWFMP). After the initial inspection, DEP's Stormwater Inspectors on average complete two follow-up inspections per aboveground facility and one follow-up inspection per underground facility to ensure the facility is properly repaired and maintained. In addition, DEP's inspectors perform a final inspection for each facility once repairs and maintenance are completed. This inspection is completed to ensure the facility is in compliance and is available for transfer in the SWFMP. Maintenance (other than grass cutting and trash removal) is funded through the Water Quality Protection Charge for facilities in the SWFMP.

Aboveground Facility Inspections

The number of initial inspections of aboveground facilities in 2006 was 479. Of these, 391 were at privately owned and 88 were at publicly owned facilities. Repairs were made at 464 facilities; 26 required immediate repairs. The DEP inspection program provided final inspections at 125 of these facilities. Thirty-five of the privately owned facilities have been accepted for transfer into the DEP program.

Belowground Facility Inspections

The number of initial inspections of belowground facilities in 2006 was 970–847 at privately owned and 123 at publicly owned facilities. Repairs were made at 93 facilities; with none of the facilities requiring immediate repairs. The DEP provided final inspections at 850 of these–774 privately owned and 76 publicly owned facilities. Thirty of the privately owned facilities have been accepted for transfer into the SWFMP.

Table III-E1. Total Number of Initial Inspections by Facility Type and Ownership During 2006.

Structure Type	Publicly Owned	Privately Owned	Total
Aquaswirl	5		5
Baysaver	16		16
Bioretention	12		12
Constructed Wetland	24	5	29
Control Structure	1		1
Dry Pond (Detention)	94	23	117
Flow Splitter	133	11	144
Infiltration Basin	14	1	15
Infiltration Trench	59	44	103
Oil/Grit Separator	391	85	476
Oil/Grit Separator and sand filter	46	3	49
Other	1		1
Pond/Sand Filter	16	2	18
Sand Filter	78	5	83
Stormceptor	110	18	128
StormFilter	15		15
Underground Infiltration Trench	29		29
Underground Sand Filter	10		10
Underground Storage	133	6	139
Underground Storage with infiltration	11		11
Vortechnics	1		1
Wet Pond (Retention)	39	8	47
Grand Total	1238	211	1449
Total Inspections Indicating Repairs	*456*	*101*	*557, 38%*
Total Aboveground with Repairs	*376*	*88*	*464, 97%*
Total Underground with Repairs	*80*	*13*	*93,10%*

Stormwater Management Ordinance and Implementation

The permit-required information on stormwater management concept plans approved during the reporting year is shown in Table III-E2 and included in the database on the CD in Attachment A. The number of sediment control permits, projects, and total developed acres decreased in 2006 compared to 2005 and earlier years. Of significant note, almost 100% (639 out of 642 acres) of land developed during 2006 were served by stormwater management facilities.

Table III-E2. Stormwater Programmatic Information (2001-2006)

Permit Condition/Year	**2001**	**2002**	**2003**	**2004**	**2005**	**2006**
GP_NUM	886	890	912	962	779	673
PRJ_NUM	231	190	252	219	249	174
REDEV	35	26		29	28	32
EXEMPT	59	27	0	0	0	0
QP_2	52	37	0	0	0	0
CP_V	0	5	3	7	11	1
H2O_QUAL	31	40	9	8	5	0
RED_WAV QP_2	23	8	0	0	0	0
RED_WAV CP_V	0	7	2	8	13	12
RED_WAV H2O_QUAL	10	4	0	3	5	1
FEES_TOT	$1,183,587	$1,200,484	$910,213	$504,806	$638,619	$427,925
ACRE-DV	2125	1390	1466	1498	1414	942
ACRE-TR	1256	1122	1382	1437	1367	939

Notes:

1. GP_NUM = Number of Sediment Control Permits Issued
2. PRJ_NUM = Total Number of New Preliminary Plans Received, including those that are exempt or for which full or partial waivers were granted
3. REDEV = Redevelopment Projects
4. QP_2 = Number of New Projects Which Received Full or Partial Waivers of Two Year Stormwater Management Requirements
5. CP_V = Number of New Projects Which Received Waivers of Channel Protection Volume Storage Requirements
6. H2O_QUAL = Number of New Projects Which Received Waivers of Quality Management Requirements
7. RED_WAV = Number of Redevelopment Projects Which Received Waivers (Based on Same Type of Waiver as for New Development)
8. FEES_TOT = Waiver Fees Are Required Where Waivers Are Granted. They Are Collected at the Time Building Permits Are Requested. Therefore, the Number of Fee Collections is Inconsequential.
9. ACRE-DV = Acres Developed (Based on Issued Sediment Control Permits)
10. ACRE-TR= Acres Served by Stormwater Management Facilities (Based on Approved Stormwater Facilities which are included in issued Sediment Control Permits)
11. FEES_TOT = Waiver Fees Are Required Where Waivers Are Granted. They Are Collected at the Time Building Permits Are Requested. Therefore, the Number of Fee Collections is Inconsequential.

New Ordinances

During October of 2006, the County Council adopted legislation to require builders of certain residential or accessory structures to identify and minimize runoff impacts to adjacent properties. The goal of this legislation was to reduce drainage problems associated with the increased imperviousness as homes were significantly enlarged on small lots in medium to high density residential areas. Known commonly as the lot-to-lot drainage bill, Bill No. 26-05 required that building on lots less than 15,000 square feet or additions of more than 400 square feet must be accompanied by plans showing safe conveyance or control of any increased runoff to adjacent property. All approved drainage systems must be designed to convey or control at least 1.5 inches of rainfall during a 24-hour period. A 6-month rainfall event in the County is 1.65 inches in 24 hours. The law became effective in March 2007.

For similar reasons, the Town of Chevy Chase Council adopted the Water Drainage Ordinance to implement a water drainage management program during November 2006. The ordinance was passed as a result of recommendations from 15-month research effort which identified significant flooding and drainage issues, and increasing problems where homes were being renovated and enlarged.

Details on this program can be found at the Town's web site at *www.townofchevychase.org/c/216.* Elements of the ordinance are shown below.

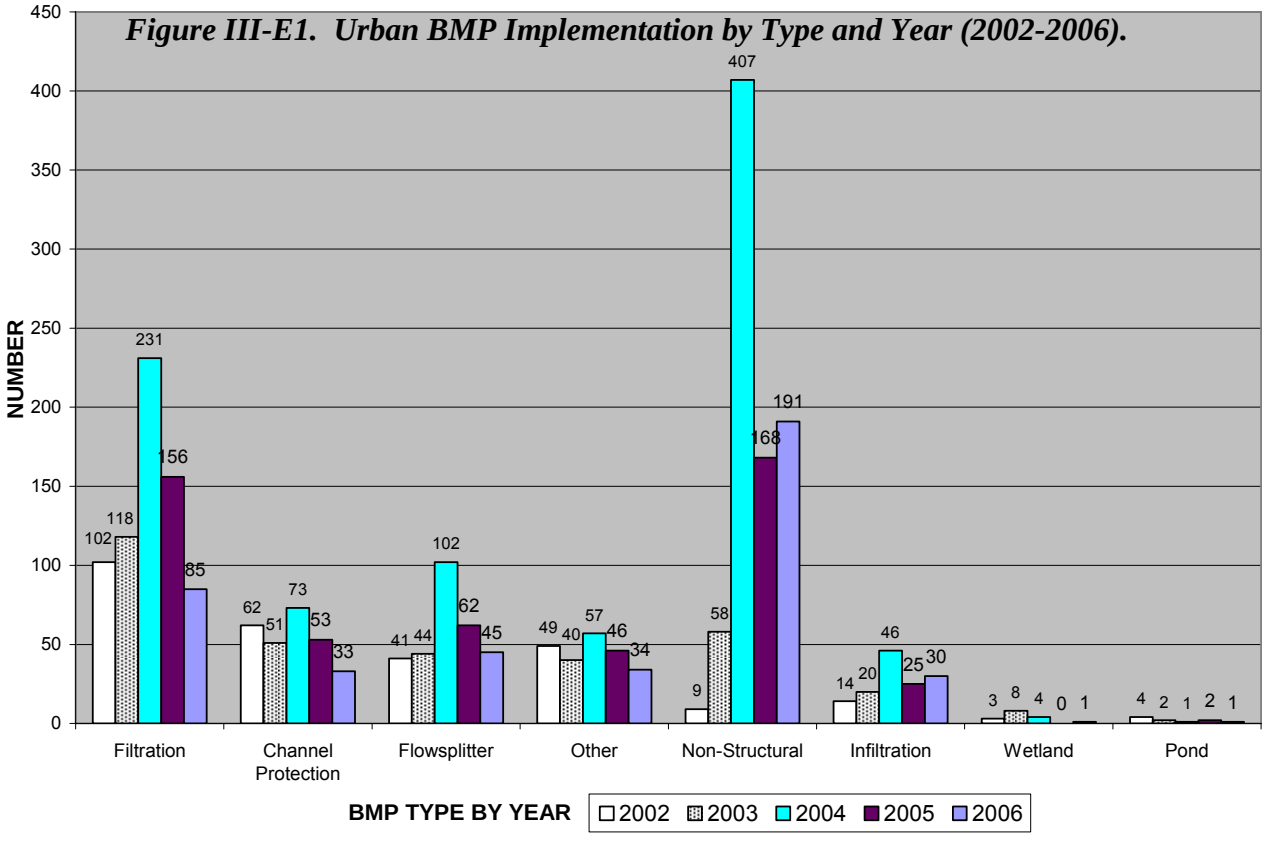
- A professionally developed drainage plan is required for large projects to prevent rainwater flowing onto adjacent property except for very large storms.
- A technical consultant will be hired to advise the Town Manager on technical aspects of the applications.
- Any projects under 700 square feet footprint are exempt (about 35% of total applications).
- Typical cost to the Owner (if not exempt) is $15,000 (under 5% of typical project cost)
- Variances may be obtained if engineering difficulties make these requirements impractical
- The Town's Water Appeals Board will review grievances
- The estimated cost to the Town is about $64,000 per year (recoverable by permit fees). This number is based on past data showing an average of 23 permittees per year requiring this work for additions and another ten new home permittees (demolition permits) per year. This results in 33 construction projects costing an average of $1,950 to pay the town engineer.
- There is an additional $35,000 one-time education and outreach costs

BMP Implementation

Information on BMPs approved and implemented in 2006 by major County watersheds is included in the database on the CD in Attachment A. Figure III-E1 shows BMPs approved by type from years 2002 through 2006. Filtration practices represented the single largest category over this five-year period. However in 2004, the number of nonstructural practices far exceeded any individual type of structural treatment device.

Non-structural practices are stormwater runoff treatment techniques that use natural measures to reduce pollution levels, do not require extensive construction efforts, and that may promote pollutant reduction by elimination of pollutant sources. There may be multiple uses or implementations of non-structural techniques within one project. Examples include rooftop runoff disconnection and drainage to vegetated buffers or grassed swales.

Part of the reason for this increase in 2004 is certainly related to better and more thorough reporting of the design and installation of nonstructural controls. A more significant factor in the increase of nonstructural controls relates to the timing of construction after nonstructural practices were required in the preliminary plan process. Construction started in 2004 on many of the preliminary plans that were approved after implementation of the new standards in July of 2002. The same relationship in numbers occurred in 2005 and 2006, although the total number of structures was much less than in 2004. A third factor in the increased use of nonstructural practices is the redevelopment of a number of residential lots where structural controls are impractical.



E2. Water Quality Program Enforcement

Outfall Screening

For the year 2006, the DEP screened a total of 140 outfalls with 63 having dry weather flows. The DEP focused on the outfalls that are contained within the drainage areas of biological monitoring sites that showed impairment due to factors not directly attributable to physical habitat degradation. However due to the fact that most of the watersheds surveyed in 2005 were in rural areas, not enough outfalls could be selected for screening; therefore additional outfalls were selected in areas that had previously shown impairment not readily attributable to impaired habitat or with a history of pollution incidents (e.g., 2000 Rock Creek fish kill). Errors in outfall location or type as shown on the existing maps were reported and corrected in the GIS inventory. Ten new outfalls were identified and will be added to the outfall GIS inventory.

Unmapped Outfalls

Unmapped outfalls are designated by a standard naming convention that was used to identify outfalls that are already contained in the GIS inventory. The temporary ID that is used in the field consists of the WSSC tile (e.g., 210nw03) followed by a dash and a number beginning with "1" that corresponds to the number of unmapped outfalls found within the particular geographic area defined by the tile (e.g., 210nw03-1, 210nw03-2). ALL unmapped outfalls must have the GPS coordinates recorded. DEP staff who are responsible for outfall data entry and QA/QC assign a permanent identification number which is then entered into the outfall data base. A spreadsheet is maintained that contains the temporary outfall ID number and the geographic coordinates of said outfall and the corresponding permanent identification number to prevent duplication, to ensure that every outfall has one unique identification number. To assign a permanent outfall identification number the WSSC tile is replace with it's corresponding tax tile name (e.g., 210nw03=HP361), followed by the capital letter "P" indicating a structure located at a specific geographic point, followed by a four digit number beginning with 5001 to ensure that the unmapped outfalls are not assigned the same identification number as those mapped outfalls that are already in the GIS inventory.

Screening Results

Of the 63 outfalls found to have flow, 38 were identified as piped streams with varying degrees of flow, and 25 actually had dry weather flow. Of the 25 outfalls having dry weather flow, five were found to have high conductivity (>750 μS) during their initial screening. In addition, two of the five outfalls with initial high conductivity showed detergent above detection limit, and one of these two measured high for Chlorine. Other parameters (Phenol and Copper) for these five outfalls were below detection limits.

Follow up screening showed the conductivity levels returned to normal at four of the five outfalls showing initial high conductivity levels. Also, detergent levels returned to below the detection limit for the two outfalls showing levels about the detection limit during their initial screening. Source tracking for the outfall with a high Chlorine level resulted in discovery of a recent spill of liquid chlorine solution at a nearby swimming pool pump room, which entered the storm drain system. Secondary containment was installed on the chlorine solution tanks as a corrective measure.

Suspicious discharges were observed at two of the 38 piped streams surveyed. Both have been traced to cooking grease discharges from nearby commercial establishments. Measures to correct these unauthorized discharges are underway. In addition, DEP is participating in quarterly meetings with WSSC regarding their FOG (Fats, Oils and Grease) Program and SSO (Sanitary Sewer Overflow) coordination, which have direct effects on storm water quality in Montgomery County.

Possible toxicity screening

Only a few of the outfalls from last year's biological monitoring areas showed impairment associated with factors not directly attributable to habitat impairment. For the year 2007, the DEP will continue its focus on outfalls located within drainage areas that indicated impairment from sources other than degraded habitat, selected stream restoration areas, and returns to problem outfalls that were identified in previous years and this year, such as HQ343P0222 in the lower part of the Turkey Branch subwatershed of the lower Rock Creek watershed.

Problem outfalls targeted for future potential toxicity testing during dry and wet weather (i.e., runoff periods) are shown in Table III-E3. Staffing constraints prevented this screening during 2006.

Table III-E3. Outfalls screened from 2002 through 2006 and targeted for future toxicity testing. ***All these outfalls show continuous flow (piped stream)***

Station	Outfall Identification	Diameter	Incident Observed
Lower Rock Creek			
LRTB203	HQ343PO222	>36"	high detergent (>3.0 mg/l) foams and grease
LRLB202	GQ561PO438	>36"	high detergent (2.0 mg/l)
LRLR205	HP343PO001		nutrient enrichment high conductivity (>700)
LRLR425	HN563PO036	>36	High conductivity (902 umhos) high pH (8.8)
	HN563PO354	>36"	High conductivity (1,041 umhos) high pH (8.4)
	HN561PO221	>36"	source of pesticide discharge for 2000 fish kill
Upper Rock Creek URST201	GQ561PO438	>36"	High detergent (3.0 mg/l), history of high pH discharges
Northwest Branch NWGT201	JQ123PO019	24"	Very high conductivity (1,500 umhos)
Paint Branch PBPB104	KQ122PO07	>36"	High conductivity, nutrient enrichment

Water Quality Investigations during 2006

For the calendar year 2006, the DEP Division of Environmental Policy and Compliance (DEPC) investigated 238 water quality complaints and 49 hazardous materials incidents, which resulted in the issuance of 29 Enforcement Actions (2 Civil Citations with fines totaling $1,000 and 27 Notices of Violation (NOVs)). These are summarized in Table III-E4.

Table III-E4. Summary of Water Quality Enforcement Actions during 2006

Case Number	Date Issued	Citation/ NOV	Violation	Defendant	Defendant's Address
17163	1/12/2006	NOV	Cooking Grease Discharge	Mr. Andy Lau	City Lite Buffet, 9679 Lost Knife Road
17212	1/23/2006	NOV	Wastewater Discharge	Mr. Thomas A. Gowling III	Normandy Carpet Care Company, Gaithersburg
17179	1/25/2006	NOV	Roadway Dragout	Mr. Steve Ward	Rockville Fuel & Feed Co., Rockville
17216	1/25/2006	NOV	Roadway Dragout	Mr. Aaron Hill	Montgomery Scrap Corporation, Rockville
17207	1/31/2006	NOV	Vehicle Fluids Discharge	Arnufo Mendez	3845 Bel Pre Rd. #2 Silver Spring
17351	3/9/2006	NOV	Gasoline Discharge	Mr. Tony Monteiro	M. Luis Construction Company, Inc., Clinton, MD
17439	3/23/2006	NOV	Concrete Discharge	Mr. James A. Carr, Sr.	W. H. Rental Center, Inc., Sandy Spring
17403	3/24/2006	NOV	Concrete Discharge	Pedro Solis	11300 Schuylkill Rd, Rockville, MD
17488	4/4/2006	NOV	Vehicle Fluids Discharge	Potomac Disposal	14815 Dover Road, Rockville
17510	4/12/2006	NOV	Vehicle Fluids Discharge	Pablo Rivas	2910 Parker Ave., Wheaton
17462	4/27/2006	NOV	Cooking Grease Discharge	Ms. Qi Shun Chen	House Fortune Restaurant, Rockville
17462	4/27/2006	NOV	Cooking Grease Discharge	Mr. Peter Gomes	Le Mannequin Pis Restaurant, Olney
17462	4/27/2006	NOV	Cooking Grease Discharge	Ms. Sylvia Pak	The Wasabi-Zen Restaurant, Olney
17610	5/2/2006	NOV	Fuel Oil Discharge	Mr. Gonzalo Ramirez	606 Rosemere Ave., Silver Spring
17617	5/15/2006	NOV	Paint Discharge	Mr. Ramiro Jimenez	19028 Jamieson Dr., Germantown
17859	7/7/2006	NOV	Paint Discharge	Mr. Roberto Sanchez	4 Tifton Ct., Potomac
17859	7/7/2006	NOV	Paint Discharge	Mr. Manuel Diaz	8829 Blue Smoke Dr., Gaithersburg
17926	7/19/2006	NOV	Equipment Fluids Discharge	Mr. Donell Thompson	Triangle Contracting & Milling, Inc., Brooklyn, MD
17934	7/19/2006	NOV	Diesel Fuel Discharge	Mr. Oscar Lyles	Lyles Trucking, Inc., Gaithersburg
17761	7/20/2006	NOV	Paint Discharge	Marel Varela	18027 Snow Creek Dr., Derwood
17617	7/28/2006	$500	Paint Discharge	Mr. Ramiro C. Jimenez	19028 Jamieson Dr., Germantown
18047	8/15/2006	NOV	Paint Discharge	Mr. Robert Evans	10030 Maple Leaf Dr., Montgomery Village
18108	9/8/2006	NOV	Wastewater Discharge	Eastham's Exxon	7100 Wisconsin Ave., Bethesda
18149	9/18/2006	NOV	Concrete Discharge	Mr. Mark Shorb	Windsor Design & Build, Inc., Kensington
18187	9/26/2006	NOV	Concrete Discharge	Mr. Duglas Hernandez	11334 Cherry Hill Road, Beltsville
18292	10/23/2006	NOV	Equipment Fluids Discharge	Mr. Antonio Araujo	5824 Tanglewood Dr., Bethesda
18404	11/28/2006	NOV	Improper Storage of Chemicals	Frank Oyenuga	4011 Sandy Spring Road, Burtonsville
18425	11/28/2006	$500	Cooking Grease Discharge	Boston Market	11297 New Hampshire Ave., Silver Spring
18482	12/20/2006	NOV	Gasoline Discharge	Antonio Alicea Jr.	10018 Maple Leaf Drive, Montgomery Village

Maple Avenue Water Quality

The DEP has had a long history of water quality complaints in Sligo Creek within the boundaries of the City of Takoma Park. The DEP provided staff support to investigate these water quality complaints although the County lacked enforcement authority until the Council adopted Resolution 15-6444 in October of 2006.

Over the past 10 years, there have been recurring problems at twin 72" outfalls at Maple Avenue to Sligo Creek in Takoma Park. As shown in Figure III-E2, much of the drainage to these outfalls originates within the District of Columbia (DC). However, the storm drain inventory for Takoma Park and DC in this area were not available until 2008. Based on information in the DEP's case history files, it took almost 19 hours of staff time to track down the source of this discharge.

In January of 2006, a significant, grayish-white discharge was reported from these twin outfalls. After a site visit and no evidence of a source within Montgomery County, the DEP began source tracking in conjunction with DC environmental enforcement and the water and sewer authority. The investigation included dye testing within the storm drain system in both jurisdictions and eventually the origin was tracked to a well drilling operation at a building construction site in Northwest DC. The DC environmental compliance staff then initiated enforcement and corrective actions to prevent future discharges from this site.

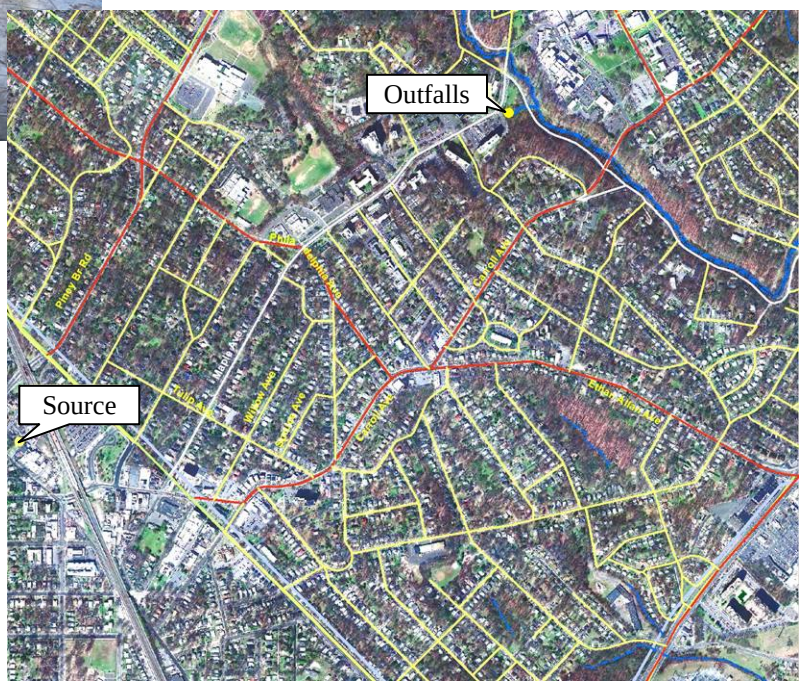


Figure III-E2. Maple Avenue Outfalls and Discharge Source Location.

Implementation Status of Stormwater Pollution Prevention Plans

Table III-E5 lists the County facilities covered under the State General Discharge Permit for Storm Water Associated with Industrial Activities (the General Permit). The State accepted the Notice-Of-Intents (NOI's) for these facilities in March of 2003 for coverage until November 30, 2007.

Staffing changes, site changes, and site activities not included on the existing Stormwater Pollution Prevention Plans (Plans) were also identified during this year's Site Assessments and updated accordingly. The Seven Locks Facility is currently under-going a major renovation and Silver Spring is scheduled to begin major renovations this year. The other sites have had minimal site changes that include the removal or installation of small storage buildings that need to be recorded. However, the Pollution Prevention Plans developed in 2000 Plans need to be updated to better reflect site operations and site changes. Spill Emergency Plans specific to each facility needs to be developed and incorporated into each facility Pollution Prevention Plan.

The DPWT has created a new Environmental Policy and Compliance position in the Director's Office who is working with facility managers to ensure that staff receive yearly training on the NPDES requirements and implementation. Training is specific to each operation, is based on yearly assessments, and is delivered at each facility location. Training was delivered ten times last year and over 200 staff attended the training. Not only did attendees learn about the NPDES requirements but also on reducing hazardous substances, pollutants, or contaminants. Over 60% of attendees expressed that they were implementing such P2 initiatives. Facility awareness has been increased regarding solids that can be carried in runoff from this site and measures have been taken to mitigate this issue. The DPWT has also created a new position within the Division of Solid Waste, Compliance Officer, to ensure environmental compliance at Solid Waste Operations; and, the Division of Fleet Management has allocated 1/3 of a Program Manager's time to handle all environmental compliance for Fleet operations.

A comparison of last year's to this year's Site Assessments shows improvement regarding outdoor vehicle washing and pollution prevention awareness and training. However, these facilities need to have an Environmental Compliance Engineer who visits these sites daily, performs routine inspections, ensures that facilities are performing more routine sweeping/house keeping, maintains products in proper storage, keeps up to date compliance records, ensures that pavement is kept clean from debris, oils, and vehicle fluids; ensures that outdoor vehicle washing is performed adequately without pollutant discharges leaving the site; and coordinates compliance across the various operations within facilities.

In addition, these facilities need to have dedicated funding to maintain and operate in such manner to prevent the potential of product runoff. Several domars are in need of repair. Several facilities need pavement to be re-surfaced. Liquid products need to be stored on secondary containers and in several facilities covered product storage needs to be provided so that products are not stored outside in the elements and other facilities need structural repairs.

The lack of indoor vehicle wash facilities at several of the sites prevents the complete elimination of wash water to the storm drain system. The Seven Locks facility which previously did not have a vehicle wash facility has a wash facility included in the new design layout. Gaithersburg/Equipment Maintenance Operations Center and the Silver Spring/Brookeville

facilities have been upgraded and currently have functioning indoor vehicle wash facilities on each site; however, these facilities would benefit if these vehicle wash stations were expanded to increase efficiency. There are two remaining facilities without indoor vehicle wash facilities and each facility continues to manage outdoor vehicle washing in order to eliminate the potential for contamination and the direct runoff of wash water to the storm drain system. The clogged storm water best management practice at the Poolesville Facility was modified, is being maintained, and is functioning per design intent.

TABLE III-E5. Results of Annual Site Assessments at Montgomery County Facilities Under the General Permit for Stormwater Discharges (Permit No. 02--SW).

SUMMARY 2005	**ASSESSMENT 2006**
Colesville Highway Maintenance Depot, Anacostia-Paint Branch; 12 acres	
1. Depot is in good condition and well maintained. *2. Yard area is clean and swept-a monthly contract is in-place for sweeping and the depot personnel sweep as-necessary- additional attention needed to store "small metal equipment items" off the ground and/or into storage sheds or under-cover i.e. tire chains, etc.* *3. Delivered sand and salt is mixed outside and stored undercover ASAP, storage domars have containment devices in-place to contain sand/salt mixture inside.* *4. Refuse material storage areas have minimal stored items on-site i.e. cut trees, woody debris; recovered asphalt, etc.-storage areas are emptied ASAP upon collection.* *5. Pollution Prevention Team has been updated and all necessary personnel have been identified.* *6. The BMP's are scheduled for cleaning and maintenance during April/May '06.* *7. Pollution Prevention training occurred in January 11, 2005 for depot personnel* *8. Vehicle maintenance bays are well ordered and stocked to include spill kits and secondary containment trays; additional attention needed for floor care i.e. sweeping.* *9. Gasoline/Diesel Fuel pumping area is clean and no spills reported; Area has a well stocked spill kit available.* *10 A large un-used liquid magnesium tank is on-site and needs to be removed*	1. P2 plans need to be updated. 2. Spill and Emergency Plans need to be developed and incorporated into the P2 Plans. 3. Depot is in fairly good condition and maintained. The County contract is in-place to provide sweeping **four** times per year; however more frequent sweeping is recommended. 4. There needs to be more frequent routine site inspections. 3. Additional housekeeping attention needed to avoid outside storage of "small equipment items". 4. Additional storage sheds or areas needed for small equipment items, tire chains, manhole covers, etc. 5. Additional secondary containment needed for storing batteries and waste products. 6. Additional storage is needed for heavy equipment. 7. Vehicle wash station needs to be upgraded. 8. Delivered sand and salt is mixed outside and stored undercover ASAP, storage domars have containment devices in-place to contain sand/salt mixture inside and prevent excessive runoff. 9. Refuse material storage areas have minimal stored items on-site i.e. cut trees, woody debris; recovered asphalt, etc.-storage areas are emptied ASAP upon collection. 10. Material storage bin retaining wall needs to be partially replaced due to erosion. Wood shoring walls to be replaced with concrete retaining wall. 11. Domars need to be replaced – and/or roof repaired/replaced. !2, Additional storage building needed for new materials (propane tanks and pavement and repair materials). 13. Pollution Prevention Team has been updated and all necessary personnel have been identified on annual assessments. 14. The BMP' were cleaned in 12/26/06-the next cleaning and maintenance was June '07 per schedule. 15. Vehicle maintenance bays are well ordered and stocked to include spill kits and secondary containment trays; additional attention needed for floor care 16. Gasoline/Diesel Fuel pumping area is clean and no spills reported; Area has a well stocked spill kit available. 17. A large un-used liquid magnesium tank is on-site and needs to be removed.

TABLE III-E5. Results of Annual Site Assessments at Montgomery County Facilities Under the General Permit for Stormwater Discharges (Permit No. 02--SW).	
SUMMARY 2005	**ASSESSMENT 2006**
	18. Dilapidated small storage shed has been removed and additional shed demolitions are pending 19. Pollution Prevention training occurred in January 11, 2006 for depot personnel.
Damascus Highway Maintenance Depot, Potomac-Great Seneca Creek; 1.4 acres	
1. Depot is in good condition and well maintained. *2. Yard area is clean and swept-a monthly contract is in-place for sweeping and the depot personnel sweep as-necessary.* *3. Gasoline/Diesel Fuel pumping area is clean and no spills reported; Area has a well stocked spill kit available.* *4. Public refuse collection area is clean and swept.* *5. Vehicle and equipment storage areas are clean, well maintained, and neat.* *6. Pollution Prevention Team has been updated and all necessary personnel have been identified.* *7. Containment barriers are in-place to prevent run-off from the site.* *8. Storage domars for salt/sand materials have containment barriers placed to prevent run-off.* *9. Maintenance bays are well ordered and stocked to include spill kits and secondary containment trays.*	1. P2 plans need to be updated. 2. Spill and Emergency Plans need to be developed and incorporated into the P2 Plans. 3. Depot is in fairly good condition and maintained. The County contract is in-place to provide sweeping **four** times per year; however more frequent sweeping is recommended. 4. There needs to be more frequent routine site inspections. 5. Containment barriers are in-place in front of domars to prevent run-off from the site. 6. Stored misc. metals need to be removed ASAP. 7. Gasoline/Diesel Fuel pumping area is clean and no spills reported; Area has a well stocked spill kit next to the pumps. 8. Additional secondary containment needed for storing batteries and waste products. 9. Public refuse collection area is clean and swept after removal of debris. The site has reduced the types of items to be accepted for drop-off by the public. 10. Vehicle and equipment storage areas are well maintained and neat. 11. Additional small storage sheds needed for small equipment to include mowing/grass cutting equipment, small tools, etc. 12. Pollution Prevention Team has been updated and all necessary personnel have been identified. 13. Maintenance bays are well ordered and stocked to include spill kits and secondary containment trays. 14. Storage domars for salt/sand materials have containment barriers placed to prevent run-off. 15. Pollution Prevention training occurred on January 17, 2006**.**
Gaithersburg Highway Maintenance Depots, Equipment Maintenance Operations Center and Gaithersburg/Rockville Transit Services, Potomac-Rock Creek; 26 acres	
1. Depot is in good condition and well maintained. *2. Yard area is clean and swept-a monthly contract is in-place for sweeping and the depot personnel sweep as-necessary- additional attention needed to store "small metal equipment items" off the ground and/or into storage sheds or under-cover i.e. manhole covers, small metal equipment and parts, etc.* *3. Truck wash facility is operational and in-use.* *4. Filter cloth barrier is in-place to prevent run-off from the asphalt recovery area.* *5. The large tar pot is still on-site and needs to be removed.* *6. Pollution Prevention Team has been updated and all necessary personnel have been identified.* *7. Maintenance bays are well ordered and stocked to include spill kits and secondary containment trays.*	1. P2 plans need to be updated. 2. Spill and Emergency Plans need to be developed and incorporated into the P2 Plans. 3. Depot is in fairly good condition and maintained. The County contract is in-place to provide sweeping **four** times per year; however more frequent sweeping is recommended. 4. There needs to be more frequent routine site inspections. 5. Additional attention needed to store small metal equipment items off the ground and into available storage sheds or under-cover i.e. manhole covers, small metal equipment and parts, etc. 6. Additional small storage sheds needed to store new and waste products. 7. Additional secondary containment needed for storing

TABLE III-E5. Results of Annual Site Assessments at Montgomery County Facilities Under the General Permit for Stormwater Discharges (Permit No. 02--SW).	
SUMMARY 2005	**ASSESSMENT 2006**
8. Storage domars for salt/sand materials have containment barriers placed to prevent run-off. *9. Gasoline/Diesel Fuel pumping area is clean and no spills reported; Area has a well stocked spill kit available.* *10. Transit Maintenance and fueling areas are well maintained, orderly and clean* *11. The BMP's are scheduled for cleaning in May/June.*	batteries and waste products. 8. Truck wash facility is operational. 9. Asphalt recovery area has been discontinued. 10. The large tar pot is still on-site and needs to be removed. 11. Maintenance bays need attention towards neatness and floor cleaning. Spill kits and secondary containment trays are in-place. 12. Storage domars for salt/sand materials have containment barriers placed to prevent run-off. 13. Sand/salt stored on-site is placed in domars ASAP. 14. Gasoline/Diesel Fuel pumping area is clean and no spills reported; Area has a well stocked spill kit available. 15.Transit Maintenance and fueling areas are well maintained, orderly and clean 16. The BMP's were cleaned12/27/06. 17. Covered storage area roof needs to be replaced. 18. Yard needs to be resurfaced. 19. Pollution Prevention Team has been updated and all necessary personnel have been identified. 20. Pollution Prevention training occurred on December 7, 2005 and January 10, 2006.
Poolesville Highway Maintenance Depot, Potomac-Dry Seneca Creek; 4 acres	
1. The fuel station area is under renovation and refurbishment; the gasoline UST has been removed and the hole sealed and patched with a concrete slab; the associated pump has been removed. Additional renovations are continuing. *2. The yard is swept and well maintained.* *3. The BMP's are scheduled for cleaning in June/July '06. The previously troublesome sand filter was re-built in '05/06 and is functioning per design.* *4. Pollution Prevention Team has been updated and all necessary personnel have been identified.* *5. The Public refuse area is cleaned and swept. The oil re-cycling areas has been upgraded with two (2) new oil tanks and one (1) new transmission fluid tank, complete with new secondary spill containment trays; the area still needs a three-sided containment shed w/ a roof to prevent rain water infiltration.* *6. The BMP's are scheduled for cleaning in May/June.* *7. Maintenance bays are well ordered and stocked to include spill kits and secondary containment trays.* *8. The large tar pot is still on-site and needs to be removed.* *9. The salt/ash domars have containment barriers in-place to prevent run-off.* *10. Stored road materials outside have containment barriers to prevent run-off.*	1. P2 plans need to be updated. 2. Spill and Emergency Plans need to be developed and incorporated into the P2 Plans. 3. Depot is in fairly good condition and maintained. The County contract is in-place to provide sweeping **four** times per year; however more frequent sweeping is recommended. 4. There needs to be more frequent routine site inspections. 5. The BMP's were cleaned in 12/28/06-the next scheduled cleaning was scheduled for June'07. 6. The waste-oil recycling area still needs a three-sided containment shed w/ a roof to prevent rain water infiltration. 7. Maintenance bays are well ordered and stocked to include spill kits and secondary containment trays. 8. The salt/ash domars have containment barriers in-place to prevent run-off. 9. Stored road materials outside have containment barriers to prevent run-off. 10. The large tar pot is still on-site and needs to be removed. 11. Domars need to be replaced – and/or roof repaired/replaced. 12. Additional small storage sheds needed to store new and waste products. 13. Additional secondary containment needed for materials and waste products. 14. Building structures need repair/replacement. 15. Pollution Prevention Team has been updated and all necessary personnel have been identified. 16. Pollution Prevention training occurred on January 18, 2006.

TABLE III-E5. Results of Annual Site Assessments at Montgomery County Facilities Under the General Permit for Stormwater Discharges (Permit No. 02--SW).	
SUMMARY 2005	**ASSESSMENT 2006**
Seven Locks Maintenance Center, Potomac-Cabin John Creek; 19 acres	
Highway Maintenance Depot *1. The Highway Depot is under-going renovations to be completed in 2008/2009. A new salt barn has been erected and is in-use, doors are not installed as-yet, containment devices needed to be placed to prevent run-off of salt/sand materials stored inside; new BMP's i.e. Bay Savers (2) and a new sand filter (1), manholes and conveyances are currently being installed; additional renovations include a new Admin/Office/Personnel building, a new truck wash facility and new covered vehicle storage areas and sheds. As renovations are in progress the depot is in good condition and well maintained.* *2. Yard area is clean and swept-a monthly contract is in-place for sweeping and the depot personnel sweep as-necessary- additional attention needed to store "small metal equipment items" off the ground and/or into storage sheds or under-cover i.e. vehicle tire chains, etc.* *3. A large un-used liquid magnesium tank is on-site and needs to be removed.* *4. Pollution Prevention Team has been updated and all necessary personnel have been identified.* *5. Maintenance bays are well ordered and stocked to include spill kits and secondary containment trays.* *6. Refuse material storage areas have minimal stored items on-site i.e. cut trees, woody debris; recovered asphalt, etc.-storage areas are emptied ASAP upon collection.*	1. P2 plans need to be updated; there were two plans developed for this facility in 2000 that omitted other operations within this site. There needs to be only one plan that covers all operations within this facility. 2. Spill and Emergency Plans need to be developed and incorporated into the P2 Plans. 3. Depot is in fairly good condition and maintained. The County contract is in-place to provide sweeping **four** times per year; however more frequent sweeping is recommended. 4. There needs to be more frequent routine site inspections. Highway Maintenance Depot 1. Renovations continue on the site- to be completed in 2008/2009. The new Admin/Office/Personnel building, and truck wash facility is under construction. 2. A large un-used liquid magnesium tank is on-site and needs to be removed. 3. Maintenance bays are well ordered and stocked to include spill kits and secondary containment trays. 4. Additional secondary containment needed for storing new and waste products. 5. Refuse material storage areas are minimal and are emptied ASAP. 6. Pollution Prevention Team has been updated and all necessary personnel have been identified. 7. Pollution Prevention training occurred on January 9, 2006.
Fleet Fuel/Maintenance Facility *1. The BMP's are scheduled for cleaning in May/June '06.* *2. Gasoline/Diesel Fuel pumping area is clean and no spills reported; Area has a well stocked spill kit available.* *3. Vehicle maintenance areas are well maintained, orderly and clean.* *4. Car wash facility is well maintained and clean.* *5. Vehicle storage area is clean and well maintained.*	Fleet Fuel/Maintenance Facility 1. The BMP's were cleaned 12/21/06-next scheduled cleaning was June '07. 2. Gasoline/Diesel Fuel pumping area is clean and no spills reported; Area has a well stocked spill kit available. 3. Vehicle maintenance areas are well maintained, orderly and clean. 4. Car wash facility is well maintained and clean. 5. Vehicle storage area is clean and well maintained.
Materials Testing Lab *1. Lab area is very cleaned and organized.* *2. Discarded test material area needs containment devices placed to prevent run-off.*	Materials Testing Lab 1. Lab area is very cleaned and organized. 2. As requested the staff has placed containment devices around discarded waste material area to prevent run-off.
Tech Center *1. Area is organized and well maintained despite the abundance of equipment.* *2. The warehouse area is very well maintained and organized.*	Tech Center 1. Interior work areas and outside storage areas are well organized and well maintained. 2. The warehouse area is very well maintained and neat.

TABLE III-E5. Results of Annual Site Assessments at Montgomery County Facilities Under the General Permit for Stormwater Discharges (Permit No. 02--SW).	
SUMMARY 2005	**ASSESSMENT 2006**
Sign and Marking Shop *1. The yard area is clean and all materials neatly stacked.* *2. Interior work areas and lounge areas are clean and well maintained.* *3. Covered outdoor storage areas are clean and well maintained.*	Sign and Marking Shop 1. The yard area is clean and all materials neatly stacked. 2. Interior work areas and lounge areas are clean and well maintained. 3. Covered outdoor storage areas are clean and well maintained.
Silver Spring/Brookville Road Service Park, Potomac-Rock Creek; 18 acres	
Highway Maintenance Depot *1. Depot is in good condition and well maintained.* *2. Yard area is clean and swept-a monthly contract is in-place for sweeping and the depot personnel sweep as-necessary.* *3. Pollution Prevention Team has been updated and all necessary personnel have been identified.* *4. Pollution Prevention training occurred on January 20, 2006.* *5. Maintenance bays are well ordered and stocked to include spill kits and secondary containment trays.* *6. The BMP's scheduled for cleaning in June/July 06 was completed.* *7. Maintenance bays are well ordered and stocked to include spill kits and secondary containment trays. Attention needed to sweep the floor of Oil-dry/Kitty Litter.* *8. Delivered sand and salt is mixed outside and stored undercover ASAP, storage domars have containment devices in-place for containment.* *9. Material storage shed areas are neat and clean and well maintained.* *10. Vehicle parking area is clean.* *11. Gasoline/Diesel Fuel pumping area is clean and no spills reported; Area has a well stocked spill kit available.* *12. A large un-used liquid magnesium tank is on-site and needs to be removed.* *Fleet Maintenance Area* *1. Maintenance bays are neat, clean, and well organized.* *2. The bus parking area was recently steam cleaned and swept.* *3. Fleet Maintenance needs more frequent inspections of storm water facilities on-site. The containment sock(s) at the oil/grit separator needs to be changed, inspected, and changed more frequently.*	1. P2 plans need to be updated; there were two plans developed for this facility in 2000. There needs to be only one plan that covers all operations within this facility. 2. Spill and Emergency Plans need to be developed and incorporated into the P2 Plans. 3. Depot is in fairly good condition and maintained. The County contract is in-place to provide sweeping **four** times per year; however more frequent sweeping is recommended. 4. There needs to be more frequent routine site inspections. Highway Maintenance Depot 1. Renovation has started on-site and is scheduled for completion in '08 - Demolition of-Building A began in May '07. Phase 1 will include Installing a new access road and expand the bus parking area. The Admin Building will be constructed '08 2. Maintenance bays are well ordered and stocked to include spill kits and secondary containment trays. 4. Additional secondary containment needed for storing new and waste products 5. The BMP's were cleaned 12/28/07 – next scheduled cleaning was scheduled for June '07. 6. Delivered sand and salt is mixed outside and stored undercover ASAP, storage domars have containment devices in-place for containment. 7. Material storage bins are neat and clean and well maintained. 8. Vehicle parking area is clean. 9. Gasoline/Diesel Fuel pumping area is clean and no spills reported; Area has a well stocked spill kit available. 10. A large un-used liquid magnesium tank is on-site and needs to be removed. 11. Pollution Prevention Team has been updated and all necessary personnel have been identified. 12. Pollution Prevention training occurred on January 20, 2006. Fleet Maintenance Area 1. Maintenance bays are neat, clean, and well organized. 2. The bus parking area was relatively clean but several wet spots were noted from what appears to be leaks from buses.

TABLE III-E5. Results of Annual Site Assessments at Montgomery County Facilities Under the General Permit for Stormwater Discharges (Permit No. 02--SW).	
SUMMARY 2005	**ASSESSMENT 2006**
	3. Fleet Maintenance needs more frequent inspections of storm water facilities on the bus parking area. The containment sock(s) at the oil/grit separator at this location needs to be inspected and changed more frequently. 4. Additional secondary containment needed for storing new and waste products. 11. Pollution Prevention Team has been updated and all necessary personnel have been identified. 12. Pollution Prevention training occurred on December 7, 2005.
Solid Waste Transfer Station/Materials Recycling Facility, Potomac-Rock Creek; 43 out of	
1. Quarterly inspection of all outfalls and BMP's on site (in addition, there is a daily walk-around as part of other on-site inspections and some SW issues are also noted during the walk-around). *2. Site is generally well kept; litter pick-up to address trash blown from the 1,000 plus vehicles a day that pass through the site is performed daily.* *3. Inlet screens have some partial blockage from blowing leaf and grinding debris.* *4. Pavement repairs in the scrap metal area have been performed since last year to eliminate ponding.* *5. Additional shielding has been provided to the Household Hazardous Waste Area to reduce windblown rain getting into the area.* *6. A project has been approved to cover the outdoor glass bins behind the Recycling Center. The roof will be built in 2006.*	1. Quarterly inspections continue for all outfalls and BMP's on site, which occurred in March 2007. In addition, there is a daily walk-around as part of other on-site inspections and SW issues are also noted during the walk-around. 2. Site is generally well kept; litter pick-up to address trash blown from the 1,000 plus vehicles a day that pass through the site is performed daily. 3. Inlet screens have some partial blockage from blowing leaf and grinding debris. Storm drains contain minor amounts of sediment that will be removed. 4. A project has been initiated in January 2007 to construct two new scales, new interior site access road, new bay at the public unloading facility, and a transfer building addition. Portions of the on-site stormwater collection system that are in the project area are protected in accordance with local and/or state requirements. 5. The annual update of the Stormwater Pollution Prevention Plan was completed in April 2007.
Gude Landfill (closed 1982) , Potomac-Rock Creek; 120 acres	
1. Quarterly inspections continue for all outfalls and BMP's on the site. *2. Site remains in vegetative and stable condition.* *3. Several persistent leachate seeps remain at or adjacent to the site in areas that cannot be readily repaired. Given that this is a pre-regulatory era landfill, the number of seeps and liquid volume associated with the seeps is minimal.* *4. Some litter needs removal from areas where homeless individuals camped by the concrete storm debris overflow pad and at the top of the site and near a soil stockpile that has been stabilized and vegetated.*	1. Quarterly inspections continue for all outfalls and BMP's on the site, which occurred in April 2007. 2. Site remains in vegetative and stable condition. 3. Several persistent leachate seeps remain at or adjacent to the site in areas that cannot be readily repaired. Given that this is a pre-regulatory era landfill, the number of seeps and liquid volume associated with the seeps is minimal. 4. Litter pickup along the fence near the Homeless Shelter on Gude Drive occurs twice per month. Other debris from where homeless individuals camped on site will be removed. 5. The annual update of the Stormwater Pollution Prevention Plan was completed in April 2007.

TABLE III-E5. Results of Annual Site Assessments at Montgomery County Facilities Under the General Permit for Stormwater Discharges (Permit No. 02--SW).	
SUMMARY 2005	**ASSESSMENT 2006**
Oaks Landfill, Patuxent-Hawlings River and Potomac-Rock Creek;190 out of 545 total	
1. Quarterly inspections continue for all outfalls and BMP's on the site. *2. Storm water pond berms and emergency spillways are mowed. Additional pond maintenance including removal of beaver dams and repairs to storm water pond risers was performed in April 2006. There are plans to add rip rap to control wave erosion on the berm on the edge of the largest pond in June 2006. A task order has already been issued for this work.* *3. Site continues to be well vegetated and all storm water conveyance systems are intact, although two downchutes on the landfill have experienced substantial settling and have been repaired several times.*	1. Quarterly inspections continue for all outfalls and BMP's on the site, which occurred in April 2007. 2. Stormwater pond berms and emergency spillways are mowed. Additional pond maintenance including removal of beaver dams and placement of riprap (Pond No. 2) occurred in April 2007. 3. Several areas at the top of the landfill have settled causing depressions which hold water. Required repairs (soil placement, regrading, stabilization) have been made to direct ponded water to the stormwater downchutes in April 2007. 4. Site continues to be well vegetated and all storm water conveyance systems are intact. Several downchutes on the landfill have experienced substantial settling and were repaired in August 2006. 5. The annual update of the Stormwater Pollution Prevention Plan was completed in April 2007.

E3. Illegal Dumping and Spills

The DEP continues to support its Illegal Dumping Hotline 240-777-3867 ("DUMP"). During the year 2006, there were 471 complaints of illegal dumping, which resulted in the issuance of 39 Enforcement Actions (17 Civil Citations with fines totaling $8,500 and 22 Notices of Violation (NOVs)). The vast majority of complaints concerned bags of trash, vegetation (leaves and brush), or other unwanted materials either dumped or being stored on private or public property. Only a small percentage of these cases represented a potential for direct runoff of contaminated material into a storm drain or receiving system. Complaint resolution invariably involved removal and proper disposal of trash and debris and proper storage (i.e. under cover) of other materials.

The DEP also provides on-line forms, applications, and other resources related to water quality enforcement. These include an '**Incident Report Form**' which can be used to file a complaint with DEP regarding the following general issues: indoor air quality and ambient (or outdoor), air quality, water quality, noise, and illegal dumping.

E4. Sediment and Erosion Control

The Permit requires that the County report on program status, responsible personnel certification classes, and grading permits for projects greater than one acre. The MDE approved the County's program delegation effective July 1, 2006. There were no needed program improvements identified in the MDE report. During 2006, the DPS conducted eight classes with 96 attendees for responsible personnel certification. There were a totla of 151 projects with 694.5 acres of disturbance. The CD in Attachment A includes workshop and grading permit information.

E5. Public Education and Outreach

General Environmental Outreach

During 2006, the County continued a multimedia approach for environmental outreach and education. The DEP routinely provides information on its web page and in response to direct requests on water conservation, stormwater facility maintenance, lawn care and landscape management, pet waste management, illegal dumping, and reporting of water quality incidents. The DPWT's Division of Solid Waste Services provides outreach on household hazardous waste and litter control, recycling, and composting at a variety of outreach events throughout the County and on its web page. The DPS's Well and Septic Section provides information on well and septic system management.

Watershed Outreach

The responsibility for all general watershed outreach remained within the DEPC during 2006. The position dedicated to watershed outreach became vacant in June and was abolished during a restructuring of the DEP outreach program in 2007.

The DEPC continued to provide outreach support for water quality enforcement issues, to the stakeholders on the Water Quality Advisory Group, and for regional efforts under the Anacostia Watershed Restoration Agreement and the Patuxent Reservoirs Watershed Protection Agreement. The WMD continued to conduct CIP project outreach, including public meetings, field walks, and telephone and e-mail responses. In addition, the WMD-Biological Monitoring staff provided technical assistance to a variety of community and environmental groups for workshops on volunteer biological monitoring.

Rainscapes

During 2006, the DEP continued to implement its Rainscapes Program as a 'beyond the CIP' effort which focused on small, on-site practices that can be voluntarily implemented to reduce runoff impacts for private property. This was the second year of grant funding from the National Fish and Wildlife Foundation to support the program. An important outcome from this phase of the program was the development of successful partnerships to carry the concepts and technology beyond the staffing limits of DEP. This included the Lathrop-Smith Outdoor Environmental Education Center, Brookside Gardens in Wheaton, and environmental and community groups. A second outcome was a list of native plants which could be obtained locally and which showed good survival in the demonstration projects.

Among the most popular among Rainscapes techniques include 'rain barrels' to collect roof runoff water for later use on gardens and landscaping. During 2006, the DEP provided technical assistance and/or supplies for four 'Make and Take' Rain Barrel workshops to distribute 84 barrels. In June 2006, the DEP developed a parthernship arrangement with Brookside Gardens in Wheaton. The DEP provided training on barrel preparation and then the staff and some of the Master Gardener volunteers took over subsequent barrel transport and preparation.

Over 200 people showed up on the first give-away day, many more than the number of available barrels. The Brookside Gardens staff recorded names and telephone numbers of those who did not receive barrels on that date. At subsequent events, the staff confirmed contact and pick up information prior to the giveaway date.

The DEP also partnered with public and non-profit entities to construct three pilot rain garden projects during 2006. The sites included the Town of Kensington and the Bradley Hills Presbyterian Church in the Potomac watershed and the Northwood High School in the Anacostia watershed. The projects and plants list for the NFWF funded projects have been included in electronic format in Attachment A and as hard copy in Attachment B.

The Town of Kensingtion is a Phase 2 NPDES MS4 municipality and appreciated the relative low cost and low maintenance approach to adding runoff management to their community. Approximately 1,000 sq. ft. of lawn area was replaced with native plants and rain barrels to improve the stormwater runoff from their Town Hall.

A second demonstration project was constructed at the Bradley Hills Presbyterian Church. The Church campus includes a significant amount of paved area. The Church's Environmental Task Force had evaluated more traditional stormwater management facilities but felt that those were too costly. The 810 sq. ft. rain garden was constructed to receive runoff directed from paved access between parking lots and to enhance what was a thin buffer to a runoff channel which enters a stream in less than 100 feet. Church members are maintaining the rain garden.

The third demonstration project at Northwood High School was part of a continuing relationship with the school's Environmental Academy. The Academy Director had identified multiple areas on the school grounds suitable for rain gardens and native plantings. The DEP agreed to provide plants for a 960 sq. ft. area that receives air conditioning system condensate and therefore tends to stay wet throughout most of the school year. Outreach included presentations to the Environmental Academy classes on urban runoff issues and the goals of the Rainscapes program in addressing some of those issues. Unfortunately, long-term maintenance turned out to be an issue at this site and during spring 2007, the courtyard rain garden was replaced with grass.

This phase of Rainscapes Program, which focused on outreach and education, was very well-received by residents, particularly members of the County's environmental community. In June of 2006, the County Council added $500,000 to the DEP budget to provide financial incentives to private property-owners to implement these techniques on their properties. The goal for this expanded program was to move beyond outreach and education to demonstrate that sufficient interest and level of participation would bring about measurable improvements in runoff water quality. A full-time staff position for this Program was created and filled in January 2007.

E6. Road Maintenance and Pollution Prevention

Storm Drain Cleaning

There was no change in level of effort of storm drain cleaning during 2006. The Highway Maintenance Section removed accumulated material from a total of 11,880 feet of storm drains (1,485 inlets). This is a slight increase compared to the 11,460 feet of storm drains clean during 2005. There is an estimated 5.72 million total feet of County storm drains.

There is no annual schedule for storm drain maintenance, with the countywide program being complaint driven to remove clogged inlets or drainage problems on public or private property. At the current maintenance rate of less than 0.5% of the system per year, it will take 200 years for a first pass of the entire system.

Streetsweeping

In Fiscal Year (FY) 03 and FY04, the DEP agreed to cost-share for vacuum-street sweeping as a BMP to reduce the amount of solids that could enter County-maintained stormwater management facilities. The DEP requested that areas with stormwater management ponds and dense urban development should be swept first, including those in the Anacostia, Lower Rock Creek, and Watts Branch watersheds.

Beginning in 2003, the DPWT required the sweeping contractor to track the total amount of material swept by route, to translate into pounds collected per curb mile per area in the County. The DPWT also condensed the sweeping cycle from March through August to about three months from March through June. This reduces the amount of time the material is exposed to precipitation and runoff into the storm drain system

The results by sweeping route in terms of tons of materials collected per curb mile are shown in Figure III-E2 for the years 2003-2005. The darker the color, the greater the amount per curb-mile that was swept up. The greatest amounts of material removed were in the southern part of the county, particular the Anacostia and Lower Rock Creek, and these routes were designated as DEP priorities along with a district in the western part of the County near Poolesville and one in the County center near Gaithersburg. The Poolesville values are attributed to the use of grit in addition to sand and salt for de-icing activities in that part of the County. The grit being heavier is presumed to increase the weight of material being collected in the sweeping. The cause of the high removal rates (assumed to reflect application rates) in the route near Gaithersburg remains unknown.

The winter from December 2005 through March 2006 was warmer than normal with few snow and ice events requiring the application of road de-icing materials. The DEP funded the once per year sweeping with 797 tons of solids collected. Figure III-E3 shows a summary of the tons per curb-mile collected for the priority routes from 2003-2006, with the decrease compared to the 2003-2005 averages reflecting the reduced application during the 2005-2006 winter season. In addition in 2006, the DPWT swept a total of 187.08 arterial curb miles and 179.85 tons of debris were collected, for a total of 977 tons prevented from entering the storm drain system.

Figure III-E2. Average Tons per Curb Mile (2003-2005) Collected during Spring Countywide Sweeping.

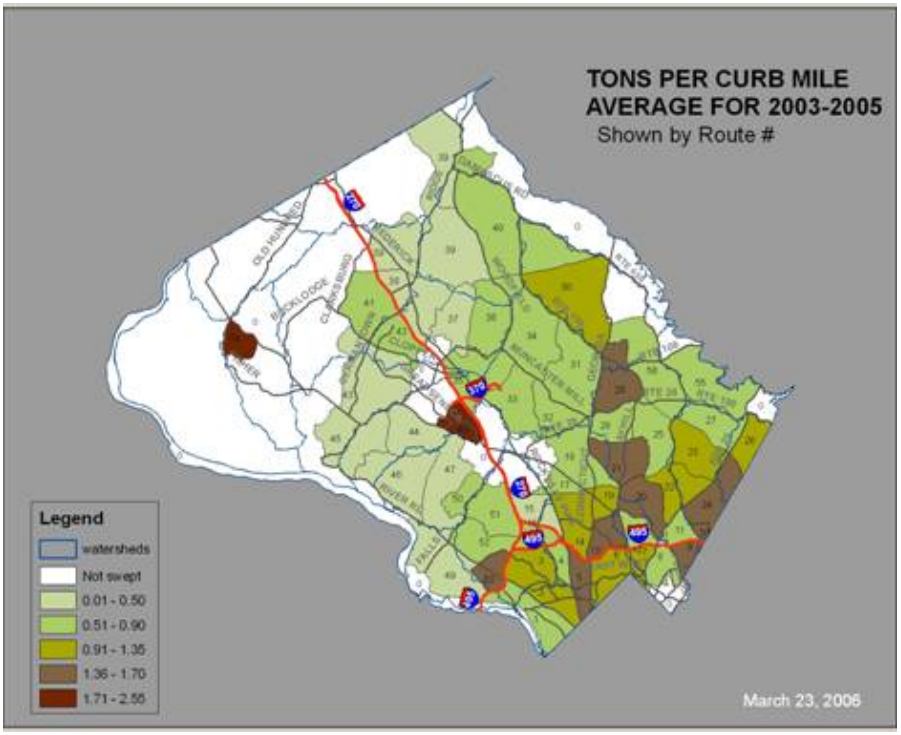
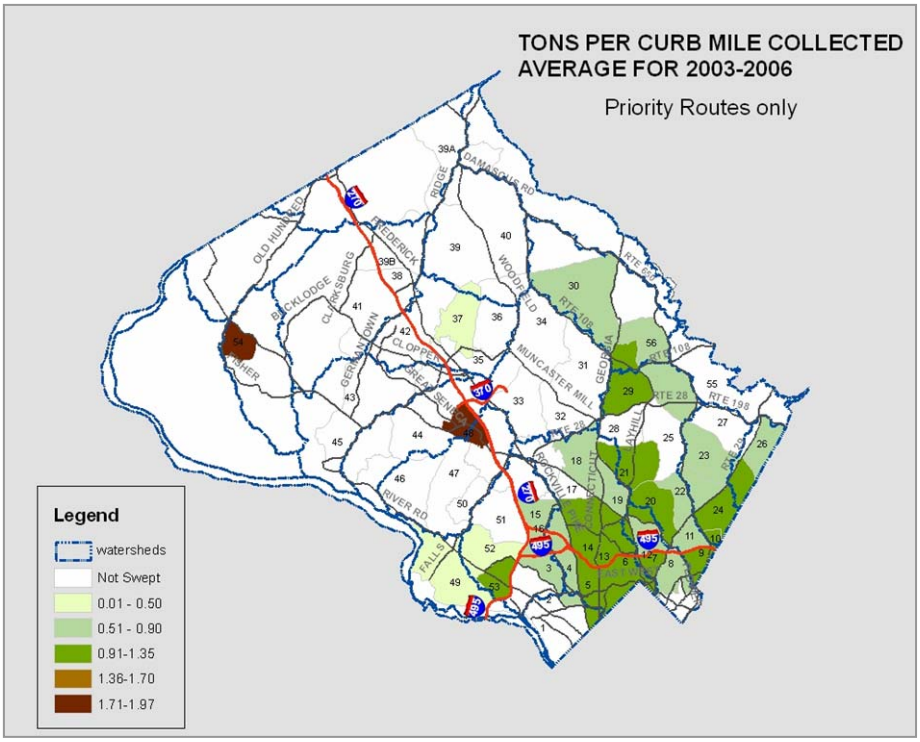


Figure III-E3. Average Tons per Curb Mile (2003-2006) Collected during Streetsweeping for DEP Priority routes. (No Countywide sweeping during 2006).



A comparison of application rates of de-icing materials and streetsweeping collection rates for the years 2003-2006 are shown in Table III-E6. While the average of materials applied in 2006 was much less than that in 2005, the average tons removed per curb mile were greater. This is attributed to targeting the DEP priority routes and those arterial routes which DPWT identified as specifically having enough de-icing materials remaining on the road surface to need streetsweeping. For the years 2003-2005, the average collected on the priority routes was 1.08 tons per curb mile which was almost 50% higher than the average of 0.78 tons collected per curb mile for all routes combined.

TABLE III-E6. De-icing Materials applied and Solids Collected by Streetsweeping from 2003-2006

YEAR	2006	2005	2004	2003
Tons sand/salt applied	29,799	56,000	49,351	66,645
Tons collected by streetsweeping	977	1,896	3,058	4,451
Curb miles swept	1,421	3,903	4,074	4,077
Average tons applied per street mile	13.7	25.7	22.7	30.6
Average tons collected per curb mile	0.69	0.49	0.75	1.09
% removed	3.28	3.39	6.20	6.68

YEARS	2006	2003-2005 average	
		Priority Routes	Countywide
Tons collected by streetsweeping	792	1,335	3,135
Total curb miles	1,234	1,234	4,018
Tons collected per curb mile	0.65	1.08	0.78

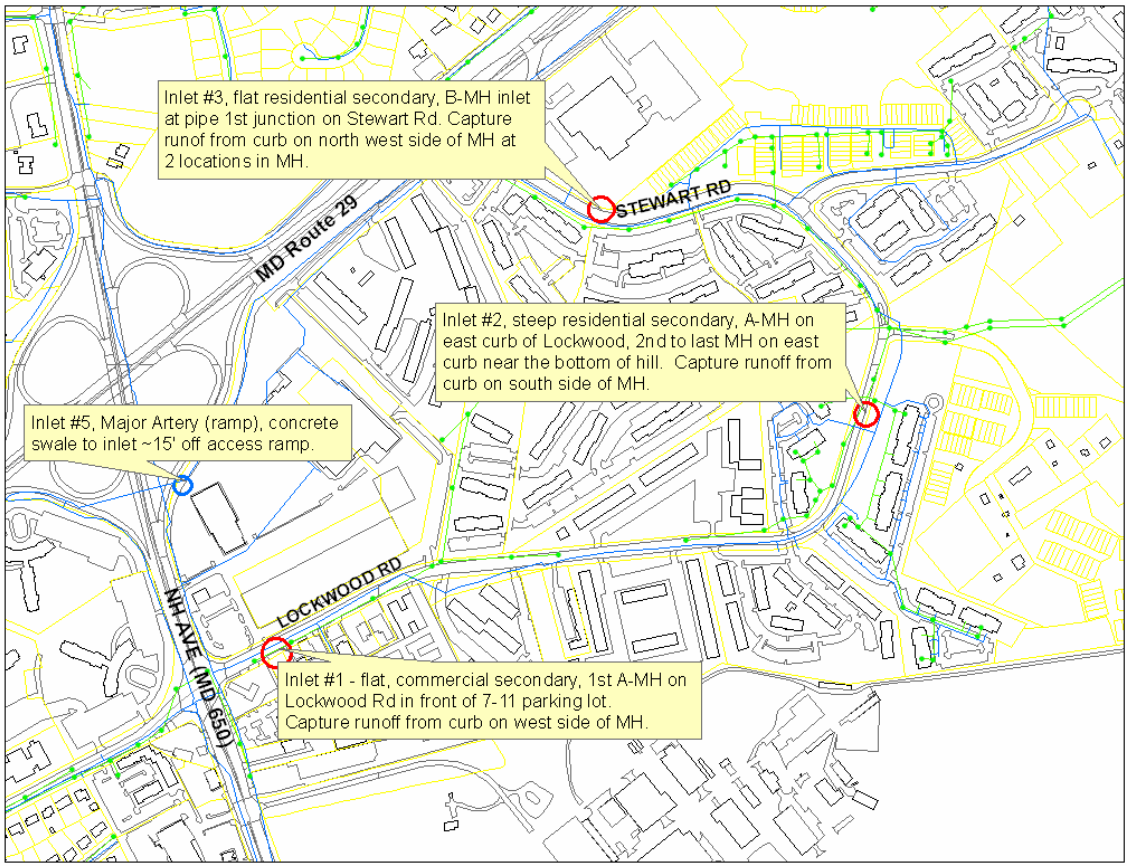
Pilot Project

During 2006, the DEP and DPWT continued to work on the pilot project in the White Oak area of the Anacostia for reducing pollutants and trash entering the storm drain system. This is the same watershed being monitored for the permit-required discharge characterization.

The trash management component includes both water chemistry and solids monitoring as well as trash characterization pre- and post-implementation. Structural controls will include inlet modifications to more effectively prevent trash from entering the storm drain system. Operational approaches include routine streetsweeping and storm drain inlet cleaning in the contributing drainage area. Pre-project monitoring began in Summer 2006. Twice per month streetsweeping and characterization of materials collected began in April 2007.

The White Oak subwatershed and four monitored inlets are shown in Figure III-E4. The pilot project includes evaluating the effectiveness of street sweeping and stomdrain inlet filter devices for the purpose of collecting gross solids and fine particulates from Lockwood Drive and Stewart Lane. The outcome of the pilot project is to help develop a more comprehensive urban source control strategy.

Figure III-E4. Storm drain system in White Oak sub-watershed.
Circles indicate monitored inlets. Red circles indicate inlets with inserts.



The monitoring includes both gross characterization of materials collected and chemical analysis. The suite of chemical parameters being monitored for the pilot project are shown in Table III-E7. These include biochemical oxygen demand, nutrients, suspended solids, and heavy metals.

Table III-E7. Chemical Analysis Parameters for White Oak Inlet Characterization

Parameter	WSSC Method[1]	WSSC MDL[2]
Biochemical Oxygen Demand 5 Day	SM 5210 B	1.0 mg/L*
Nitrate+Nitrite	L10-107-04-1-A	0.015 mg/L
Total Kjeldahl Nitrogen	L10-107-06-2-D	0.08 mg/L
Total Phosphorus	L10-115-01-1-E	0.021 mg/L
Total Suspended Solids[2]	SM 2540 D	1.0 mg/L
Total Copper	EPA 200.8	1.2 µg/L
Total Zinc	EPA 200.8	3.4 µg/L

[1] Most currently available, SM=Standard Methods, L=Lachate Instrument Methods, and EPA=Environmental Protection Agency
[2] Wet chemistry MDL; dry residue chemistry may vary
MDL= Method Detection Limit

The pre-implementation monitoring was completed during 2006, including five storm events at four inlets. Post-implementation monitoring began during 2007 and is continuing into 2008. The frequency for the post-implementation monitoring is shown in Table III-E8. The final report on the pilot project will be available in 2008.

TableIII-E8. Schedule for BMP Post Implementation Monitoring

Monitored Practice	Gross Characterization of Trash and Debris	Chemical Analysis
Street Sweeping	Twice monthly	Once monthly
Inlet Cleaning	Once monthly	Once monthly
Storm Monitoring (Inlets)	(Not Applicable)	Monthly

E7. Integrated Pest Management

Montgomery County is required to examine the use, control, and reduction of herbicide, pesticide and fertilizer for all departments. The County continues to implement its Integrated Pest Management (IPM) program at county owned facilities by the DPWT-Division of Operations.

Table III-E9 shows pesticide use at facilities maintained by the DPWT-Division of Operations for calendar years 2006 and 2005. There were no fertilizers applied at any of the 99 facilities comprising 251 acres that were in the County landscaping program during 2006.

The County Pest Control Contractor and County Property Managers continue to work with facility occupants to stress the need for proper sanitation measures to control pests. Routine inspections are carried out to identify possible sources of infestation which are immediately corrected. Pesticides are used only when all other measures have failed.

Table III-E9. Pesticide Usage at County-Maintained Facilities for 2006 and 2005.

Purpose	2006		2005	
Landscaping No fertilizers were applied	251 Acres at 99 facilities Roundup 5 gallons (undiluted)		250 Acres at 98 facilities Roundup 7 gallons (undiluted)	
Structural Pest Control * outside use only	1,629,000 at 78 facilities		1,600,000 sq ft at 77 facilities	
	Maxforce Gel	1.5 lb	Maxforce Gel	3.3 lb
	Boric Acid	66.2 lb	Boric Acid	25 lb
	Roach Glue Boards	1440 ea	Roach Glue Boards	601 ea
	Maxforce Baits for Ants	1448 ea	Maxforce Roach Baits	450 ea
	Drax ant gel	.8 lb	Drax ant gel	3.1 lb
	Wasp Spray (60 cans)	90 lb	Wasp Spray (20 cans)	30 lb
	Delta guard (granules)	386 lb	Delta guard (granules)	540 lb
	Talon-G (rodent bait)	60.5 lb	Talon-G (rodent bait)	10.7 lb

F. Watershed Restoration

The County is continuing its systematic assessment of water quality, stream resource conditions, and habitat modification within all of its watersheds. In its first Permit, the County was mandated to complete watershed studies and action plans in the Little Falls and Sligo Creek watersheds, the Paint Branch, the Little Paint Branch, Upper and Lower Rock Creek 2atersheds, the Watts Branch, Cabin John Creek, and Northwest Branch watersheds. Since 1996, the County has completed assessments and identified restoration opportunities in about 40% of its total watershed area, including all of the urban watersheds required in its first Permit. The DEP goal is to add stormwater to 4,700 acres of currently uncontrolled drainage and to construct restoration projects on 30 miles of degraded streams by 2012.

During 2004, the County began the watershed restoration inventory in the Great Seneca Creek and Muddy Branch watersheds as cooperative efforts with the USACE and the City of Gaithersburg. These areas represent roughly one-third of the total County land area and include drainage from the densely developed areas of Gaithersburg and Germantown. This study will complete stormwater retrofit and stream restoration assessments in almost all of the County's urban and surburban watersheds.

F1. Watershed Screening

During 2006, watershed screening was conducted in the Little Seneca and Great Seneca watersheds. Fifty-four stations were monitored for both benthic macroinvertebrates (benthos) and fish, six of which showed biological impairment but habitat in the good range. An additional 19 stations with drainage areas less than 300 acres were monitored for benthos only. Previous experience had shown that stream segments with such small drainage areas would typically support only pioneering species of fish, and hence the fish community would not be a useful indicator of water quality. Of these 19 stations, two showed impaired biology but habitat in the good range. Stations identified as impaired are shown in Table III-F1.

Further investigation will be requested for the four stations in the Little Seneca watershed and four stations in the Great Seneca watershed that were identified as having other than habitat impairment. Information for stations GSLD110 and GSMS112 will be passed along to the city of Gaithersburg for follow up. The other six stations will be included among those to be screened for illicit discharges during 2007.

Table III-F1. Results of Biological Monitoring forPossible Impairment not associated with Long-Term Physical Stressors (2006)		
Watershed Station	**Location and Possible Causes of Impairment**	**Follow-up Actions**
LITTLE SENECA WATERSHED		
LSCT103	Station located in Germantown on Little Seneca creek's Churchill tributary off of Club Hills Drive. SHF, SSE, ESC, and STP are all possible causes of impairment.	Will include in 2007 illicit discharge outfall monitoring.
LSCR202A	Station also located in Germantown on Little Seneca creek's Crystal Rock tributary off of Kinster Drive. Possible causes of impairment are SSE, SHF, & STP.	Will include in 2007 illicit discharge outfall monitoring.
LSLS103C	Station located in Clarksburg, just downstream of where Stringtown Road crosses the main stem of Little Seneca creek. Possible causes of impairment are SSE, SHF, STP, DBS, & ESC.	Will include in 2007 illicit discharge outfall monitoring.
LSBT101	Station located upstream from Festival Drive in Germantown. Possible causes of impairment are SHF, SSE, & DBH.	Will include in 2007 illicit discharge outfall monitoring.
GREAT SENECA WATERSHED (UPPER, MIDDLE, and LOWER)		
GSLD110	Station located in Gaithersburg, upstream of where Rabbit Road crosses, approximately 30m upstream of a concrete bridge. This bridge is just upstream of the road crossing, (about 70m), clearly visible from the road. SSE, SHF, ESC, & IWT are possible causes of impairment.	Will pass information along to the city of Gaithersburg for their use.
GSMS112	Station located in Gaithersburg, off of Metropolitan Grove Road, just below the crossing of I-270. Possible causes of impairment are SHF, STP, LTP, & SSE.	Will pass information along to the city of Gaithersburg for their use.
GSMB201	Station is located in Damascus, downstream 200m from Bethesda Church Road. SHF, STP, LTP, & SSE are possible causes of impairment.	Current study being done to I.D. restoration projects in the Great Seneca Watershed. Will also include in 2007 illicit discharge outfall monitoring.
GSLS111	Station is located off of Suffolk Terrace, outside the city of Gaithersburg. Possible causes of impairment are SHF, SSE, STP & DBS.	Current study being done to I.D. restoration projects in the Great Seneca Watershed. Will also include in 2007 illicit discharge outfall monitoring.

Legend for Possible Causes of Impairment:

Winter/Spring **H**igh **F**lows	WHF
Summer **H**igh **F**lows =	SHF
Suspended **S**ediment **E**vent	SSE
Drought **L**ow **F**low =	DLF
Increased **W**ater **T**emperature	IWT
Degraded **B**enthic **S**ubstrate	DBS
Entrenched **S**tream **C**hannel	ESC
Short **T**erm **P**ollutant Event	STP
Long **T**erm **P**ollutant Event	LTP

Tables III-F2 and III-F3. show the results for monitoring of physical chemistry and rapid habitat assessments at these eight stations. These eight stream segments seem to be affected by stormwater volume and sedimentation—and while the overall habitat rated well, all have degraded riparian zones and unstable banks.

Table III-F2. Physical Chemistry of Stations with Impairment (2006)

Station	Sample Date	Monitoring Type	Dissolved Oxygen	Percent Saturation	PH	Conductivity (umhos)	Air Temp (°C)	Water Temp (°C)
LSCT103	3/28/2006	Benthos	11.3	98	6.65	**633**	13.3	9.8
LSCT103	7/11/2006	Fish	7.9	86	**11.60**	448	24	19.9
LSCR202A	3/28/2006	Benthos	11.82	103	6.89	**677**	13	9.7
LSCR202A	6/7/2006	Fish	7.8	83	7.00	497	25	18.1
LSLS103C	4/4/2006	Benthos	10.37	88	7.08	458	10	8.3
LSLS103C	6/13/2006	Fish	8.32	85	7.12	274	No reading	17
LSBT101	4/11/2006	Benthos	11.41	102	6.89	413	25	10.8
GSLD110	4/10/2006	Benthos	13.09	130	8.79	571	19	16
GSLD110	6/20/2006	Fish	**6.84**	**77**	7.43	555	24	**21.2**
GSMS112	4/19/2006	Benthos	**6.92**	**57**	6.69	**1064**	19	12.5
GSMS112	8/17/2006	Fish	**5.51**	**60**	7.26	**1270**	25	**20.4**
GSMB201	3/30/2006	Benthos	10.86	104	6.44	**970**	22	14
GSMB201	7/10/2006	Fish	8.55	89	6.97	**759**	27	17.4
GSLS111	4/10/2006	Benthos	12.18	106	7.36	**625**	14	10.6

Table III-F3. Rapid Habitat Assessment Summary of Stations with Impairment (2006)

Station	Benthos Habitat Score	Fish Habitat Score	Overall Habitat Narrative	Summary of Vulnerable Habitat Parameters
LSCT103	124	119	Good	Poor bank stability, vegetative protection, and riparian zone protection.
LSCR202A	126	127	Good	Low scores in bank stability, vegetative cover, and sediment deposition.
LSLS103C	133	115	Good	Low scores for bank stability and vegetative protection.
LSBT101	140	No reading	Good	Low scores in bank stability, vegetative cover, and sediment deposition.
GSLD110	130	113	Good	Scores particularly low for right bank stability, vegetative protection.
GSMS112	102	97	Good/Fair	Low scores for sediment deposition, embeddedness, bank stability, vegetative cover, and right bank riparian zone width.
GSMB201	101	127	Fair/Good	Poor bank stability, vegetative protection, and riparian zone width.
GSLS111	144	No reading	Good	Poor bank stability and vegetative protection. Outfall at top of station.

Little Seneca Watershed (33 total sites, 23 were fished)

Twenty-three stations were monitored for both fish and benthic macroinvertebrates (benthos) in the Little Seneca watershed. Ten additional stations were monitored only for spring benthos due to their small drainage areas. After this screening process, four stations were identified as impaired for other than physical habitat stressors—LSCT103, LSCR202A, LSLS103C, and LSBT101. Figure III-F1 shows a comparison of biological condition to habitat condition for each station.

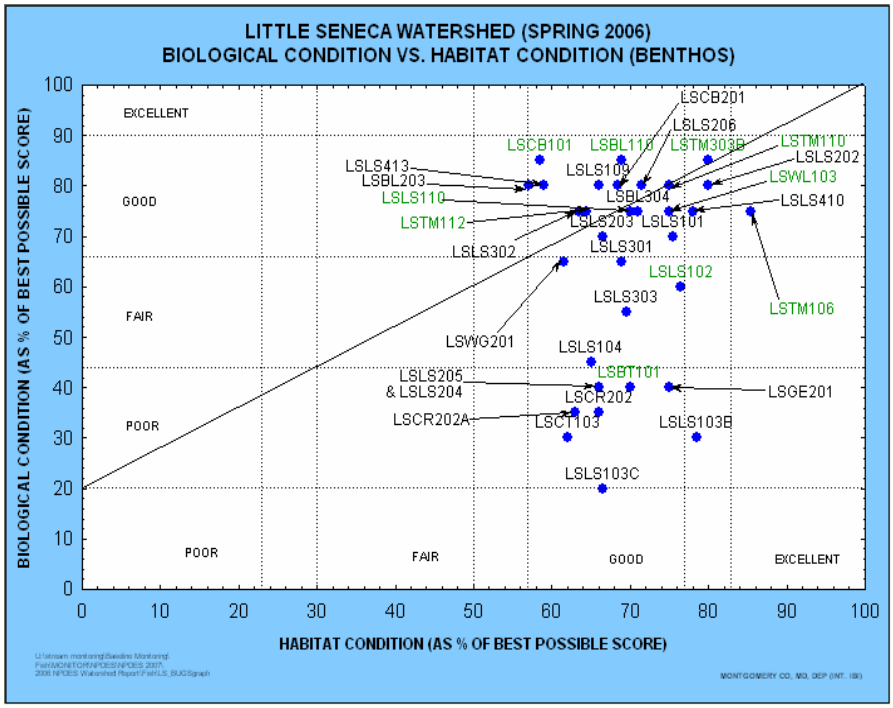
LSCT103 was rated "poor" for both benthos and fish but habitat in the "good" range. This station is located in the Churchill tributary which drains into Lake Churchill. The station is located in a developed area of Germantown, with many stormwater outfalls to the stream, predominant upstream land uses being high-density residential, industrial, and commercial, and in close proximity to Interstate 270. In the spring, the conductivity was abnormally high (633 umhos), a level typically associated with high concentrations of dissolved ionic materials such as road salts used in de-icing. In the summer, the high pH of 11.6 was taken as a sign of a possible detergent contamination. The DEP staff walked upstream to find the source of the apparent discharge, taking pH readings along the way. No pH readings above 10.7 were detected upstream of the station and the pH at the station steadily returned to a normal of 7.5 within 30 minutes. The abnormal pH was apparently associated with a transitory discharge. The site scored relatively well for the habitat assessment except for vegetative protection and bank stability. This degraded buffer zone and unstable banks may be why the stream is especially susceptible to fine sediment deposition and runoff from the nearby community.

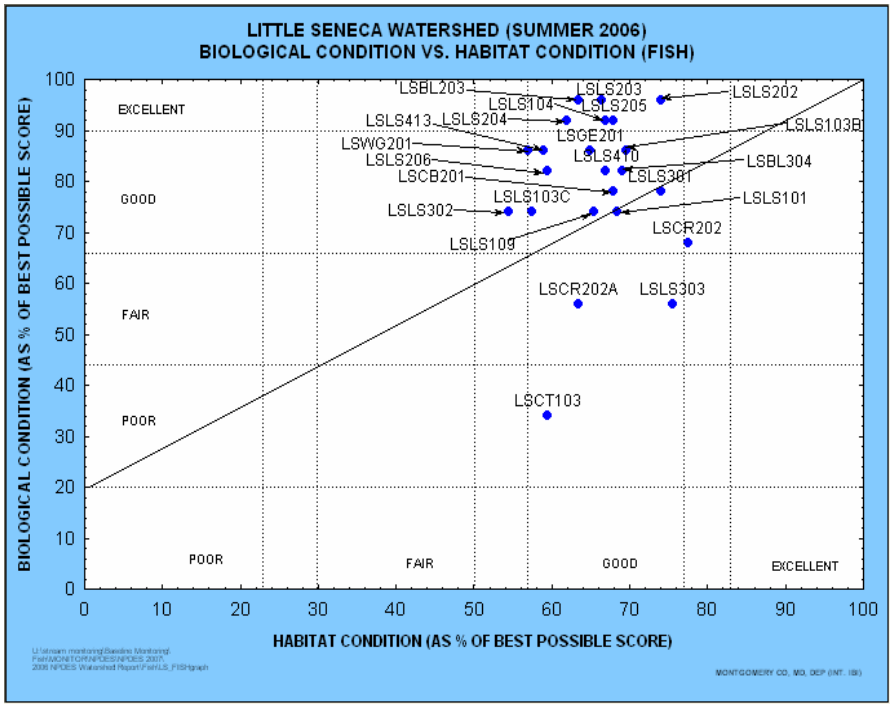
LSCR202A, LSLS103C, and LSBT101 also showed impairment by other than habitat. LSCR202A is also located in Germantown, with the surrounding land use being mostly high-density residential. LSCR202A rated "poor" for benthos in the spring, and "fair" for fish in the summer. In the spring, conductivity was high at 677 umhos, with sediment deposition and embeddedness being a definite problem. A possible point source for the problem could be the drainage from a stormwater pond that enters the stream on the left bank.

LSLS103C is located in the new development of Clarksburg in a County SPA. LSLS103C scored lowest for benthos of all the Little Seneca stations, but scored "good" for fish in the summer. This station is within the Clarksburg area that has had considerable construction activity over the past few years. Sediment deposition is a definite problem at this station, possibly from the surrounding pre- and post-construction sites. Excessive suspended sediment inputs to the stream are likely adversely affecting the benthos community at this station.

LSBT101 was monitored only for benthic macroinvertebrates due to its small drainage area, and it scored "poor" for benthos health. The drainage to LSBT101 has a mixture of low, medium, and high density residential, and institutional land uses. Springtime conductivity readings were a little high (413 umhos), and habitat scored relatively low for bank stability, vegetative cover, and sediment deposition.

Figure III-F1 Comparison of Biological and Habitat Condition in Little Seneca Watershed during 2006. ***Line shows expected direct correspondence between biological and habitat conditions. Stations in Green are benthos stations only***





Great Seneca Watershed (Upper, Middle, & Lower) (40 total sites, 31 were fished)

In the Great Seneca watershed, 40 stations were monitored for benthos and 31 of those stations were monitored for fish. Four Great Seneca stations were identified as impaired from other than habitat: GSLD110, GSMS112, GSMB201, and GSLS111. All four of these stations showed high conductivity (greater than 500 umhos) during both the benthos and fish monitoring. Figure III-F2 shows a comparison of biological condition to habitat condition by station.

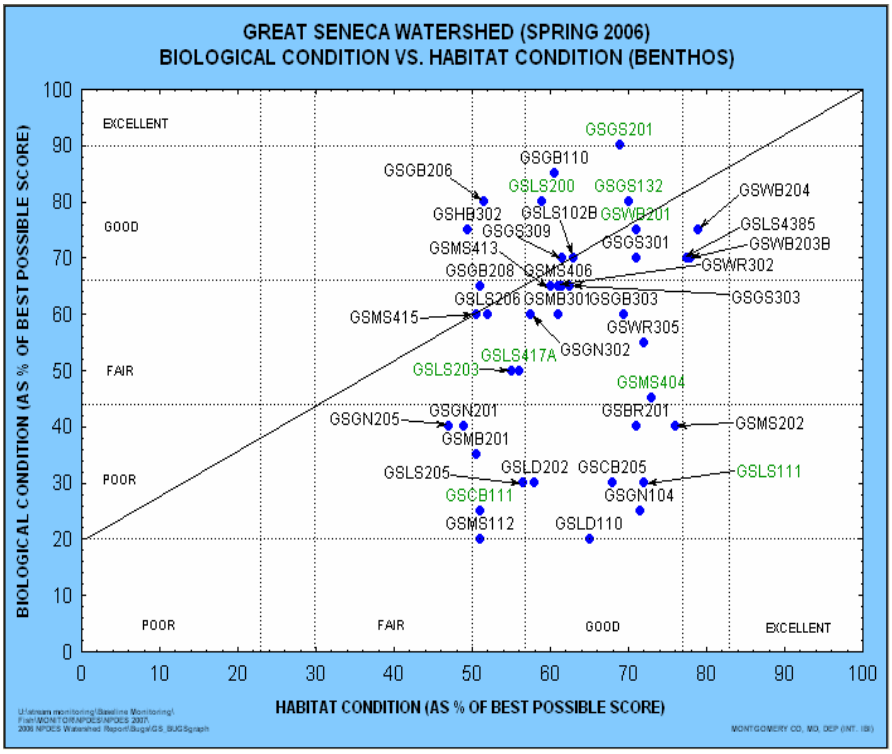
GSLD110 is on the Long Draught tributary of Great Seneca Creek which drains into Clopper Lake. The station is located in the city of Gaithersburg, with surrounding land uses being high and medium density residential, commercial, and institutional. Interstate 270 is also within the drainage area. This station was rated "poor" for both benthos and fish, and rated in the "fair" to "good" range in the summer for habitat. The habitat scored well in most areas, except for the categories of bank stabilization and vegetative protection. The vegetation is mowed where a sewer-line crosses through the right bank riparian zone. The site was also found to have high conductivity and algae growth in both the spring and summer. The temperature of the stream water tended to follow storm events that occurred in June. Higher water temperatures in the summer paired with low dissolved oxygen readings likely stressed fish health. However, the water temperatures stayed well below the use class 1 maximum temperature of 32°C.

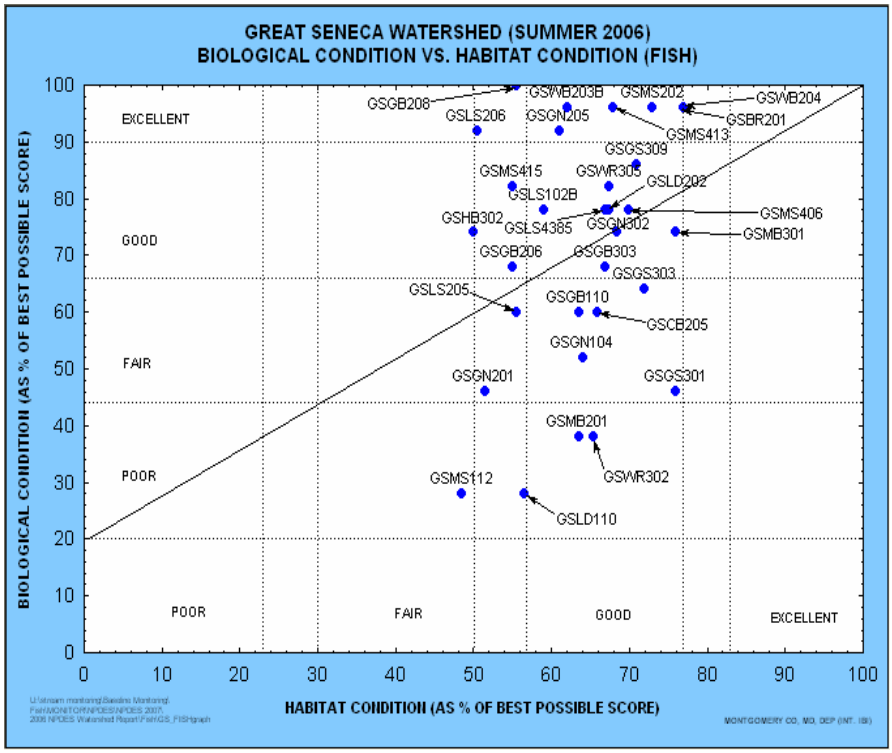
Station GSMS112 is also within the City of Gaitherburg, with open urban land, industrial, institutional, and commercial land uses within its drainage area. Both benthos and fish were evaluated as "poor". GSMS112 had extremely high conductivity readings (greater than 1,000 umhos) for both the spring and summer. The station's bank stability and riparian vegetative cover were rated as "poor:. I-270 is 300 feet into the right-bank riparian zone, as well as a sewer-line crossing. There is construction occurring in what used to be a pasture just downstream of the station. Algae growth was noted as a problem in the spring, as well as erosional disruption of vegetation . Water temperatures for this station also seem to follow average air temperatures and rain events for the summer without much of a buffer , but did stay below the use class 1 maximum of 32°C. Low dissolved oxygen, along with a high water temperature, probably stressed the fish and benthos during the summer.

GSMB201 is a station that should be re-located. Currently, the station is located between a commercial district (high impervious areas) and a regional pond put in place to manage the runoff from the commercial district.. The water flowing through the current station location is untreated, whereas the water is treated directly downstream in the pond. Factors for impairment include high conductivity, bank stability issues, and other human impacts to the riparian zone, such as heavily used trails and trash.

Station GSLS111 was monitored for benthos only. Habitat scored in the "good" range, with the exception of bank stability and vegetative protection., but the benthic community was evaluated as "poor". Located on the Lower Seneca tributary to Great Seneca Creek, GSLS111 has low, medium, and high density residential, institutional, industrial, and commercial land uses contributing to its drainage. Conductivity was high (625 umhos) possibly associated with runoff from an outfall located right at the top of the station.

Figure III-F2. Comparison of Biological and Habitat Condition in Great Seneca Watershed during 2006. ***Line shows expected direct correspondence between biological and habitat conditions. Stations in Green are benthos stations only.***





F2. Selected Restoration Watershed

Restoration Goals

Table III-F4 shows the results of the impervious surface analysis to calculate the restoration goal 'to the maximum extent practicable' as required in the Permit. The total acres developed under County responsibility for stormwater management (81,603) is about 33.6% of total acres minus excluded areas. Of those acres, about 52% (42,480) has some sort of stormwater management. The 10% watershed restoration goal based on these calculations is 2,580 acres. The combination of 2,434 acres in the selected restoration watershed of Turkey Branch and the 2,872 acres to completed restoration projects in 2006 exceeds this calculated 10% goal .

Table III-F4 Impervious Surface Analysis for Watershed Restoration Goal (2006)		
Total County Acres		324,552.00
Total Acres of Impervious Surface		34,001.99
Total Acres of Impervious Surface minus excluded areas		25,798.08
10% Goal in Acres		2,579.8
Turkey Branch		2,434.00
Excluded Areas: (total area, not just impervious area; in acres, except as noted)		
Rural Zoning (RC, RDT, RZ)		100,308
Parklands (Local, State, National)		61,435
Forests in Parkland		40,916
Municipalities with own stormwater management programs	*Rockville*	8,644
	Gaithersburg	6,419
	Takoma Park	1,339
State and Federal Properties		22,045
State Maintained Roads	Miles	1,598
	Acres	2,344
Existing Controls (acres)		
Stormwater BMPs		42,480
Drainage to Stream Restoration Projects (completed in 2006)		2,872 (estimated)

Turkey Branch Watershed

A detailed assessment of the Turkey Branch subwatershed and a restoration schedule was submitted in January, 2003 as required in the Permit. Design and construction of restoration and retrofit projects were delayed because of site constraints and administrative requirements associated with federal transportation program grant funds. Construction of the Turkey Branch Stream Restoration Project began in January 2007 and is nearing completion. The estimated project cost is $3.6 million bid to complete the construction of two new stormwater management ponds and retrofit of an existing third pond for control of 406 acres. The project also involves substantial stream restoration, covering impacts in 1.7 linear miles of stream, with total scope of work covering 3.5 linear miles of stream.

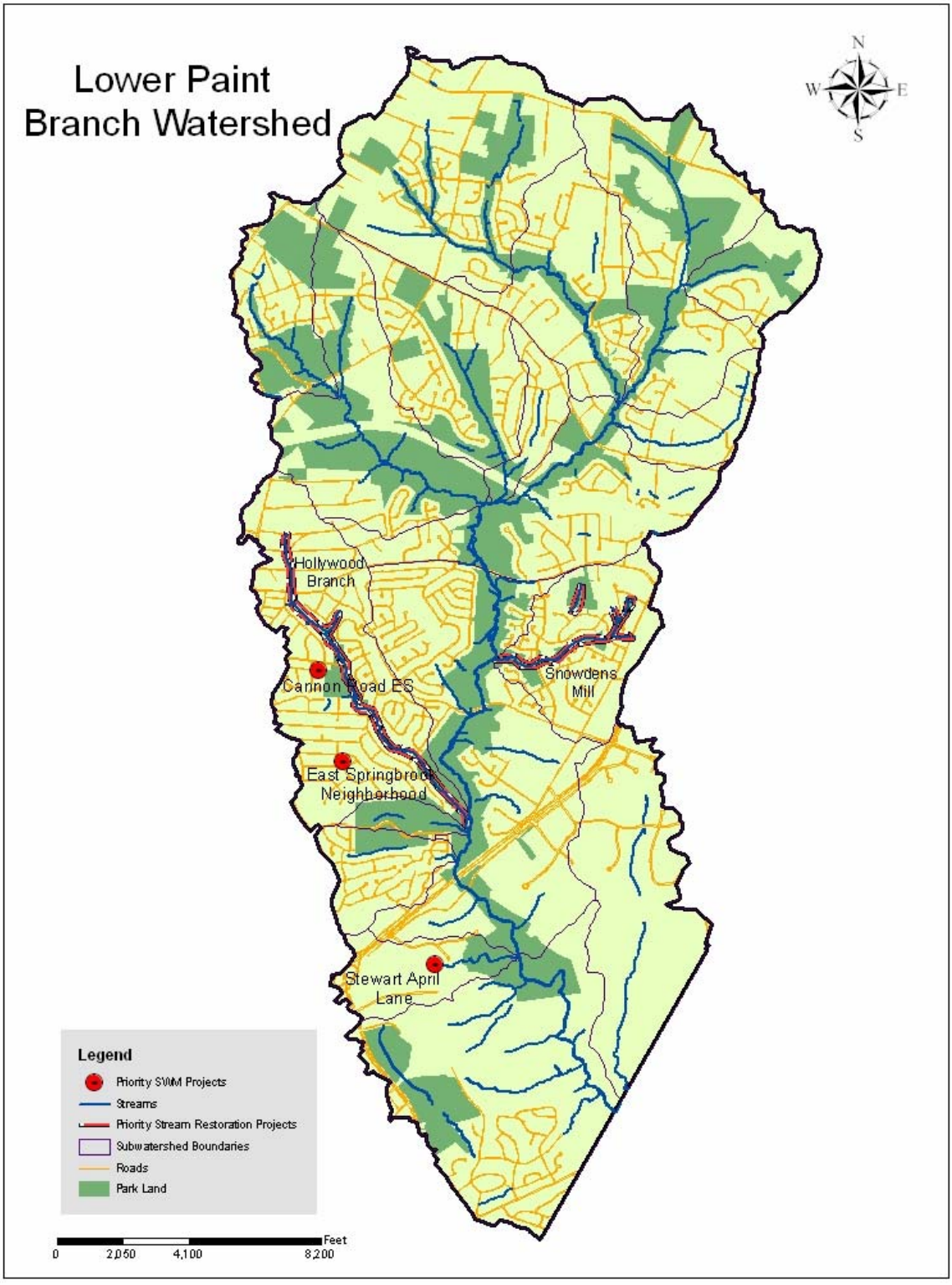
Pre-construction monitoring was conducted during 2002 and 2003 and summary tables presented in the annual report for 2003. The overall watershed stream resource condition is poor. Post-construction monitoring will take place one year, three years and then five years after completion of the projects to assess changes in stream condition.

Next Restoration Watershed: Lower Paint Branch

The County has selected the Lower Paint Branch, shown in Figure III-F3 as next to meet the Permit-required watershed restoration goal. Hollywood Branch, Snowdens Mill Tributary, and Stewart April Lane will be the three tributaries of emphasis. The stream conditions for these three subwatersheds range between fair to poor, reflecting the urban landscapes in these subwatersheds. There has been no change in status of implementation for this watershed.

The Lower Paint Branch Watershed Study, completed in 2006, identified the need for restoring Hollywood Branch and Snowdens Mill Tributary. The engineering design for Hollywood Branch (reach 3) Stream Restoration Project is expected to begin in 2008 and Snowdens Mill Tributary is currently planned to begin the engineering design in FY09. The third tributary, Stewart April Lane, has been monitored as part of the NPDES Permit requirements since 2001 and is the current focus of a pollutant and trash management pilot project.

Figure III F3. Potential Runoff Treatment Projects for Lower Paint Branch



G. Program Funding

The Permit requires the County to submit a fiscal analysis of its expenditures and maintain adequate program funding to comply with all conditions of this permit. Table III-G1 compares expenditures in FY03 with those budgeted by fiscal year through FY07. The County's fiscal year runs from July 1 of one year to June 30 of the next. The County expended approximately $14 million to comply with Permit requirements during FY07. This was an increase of about $1.5 million compared to the previous year. Most of the increase came from the CIP for watershed restoration project implementation.

In addition to the FY07 funding to meet Permit requirements, the County Council approved $1.25 million through the Water Quality Protection Charge to identify and increase implementation of low impact design (LID) and environmentally sensitive designs (ESD) in both the public and private sectors. The projects from this special funding will go beyond existing Permit-required programs, focusing on source control for watershed restoration. An additional $100,000 was allocated to initiate a flow and water chemistry monitoring network.

Table G1. Funding for Permit-required Programs *WQPC: Water Quality Protection Charge; CIP: Capital Improvement Program*					
PERMIT CATEGORY	**Thousand $ by fiscal year**				
	FY03	**FY04**	**FY05**	**FY06**	**FY07**
C. Source Identification Storm Drain Inventory	31	98	195	160	110
D. Discharge Characterization Outfall and Instream Water Chemistry Monitoring	50	50	50	50	50
Integrated Discharge Characterization and Design Manual Monitoring (also Watershed Restoration Monitoring)	574	572	612	751	773
E. Management Programs					
Stormwater/Sediment Control Casework Management	369	394	322	256	338
Plan Review-Stormwater Management and Sediment/Erosion Control	864	924	1,220	1,306	1,412
Maintenance Inspections	989	899	1,379	995	1,007
Stormwater Facility Repairs *WQPC*	1005	2,773	1,941	3,056	1,781
operating	26				
DEP Public Outreach and Coordination	333	339	265	265	100
Water Quality Discharge Law Enforcement	246	268	147	161	168
Inspection-Stormwater Management and Sediment/Erosion Control	945	956	1,178	1,319	1,894
Street Sweeping: *DPWT*		208	208	208	100
DEP	12	112	112	112	200
Watershed Assessments and Action Plans *(inventories, planning, project design, and construction)*: *CIP*	5,395	4,267	8,220	3,779	6,021
TOTAL	10,839	11,860	15,849	12,418	13,954

H. Assessment of Controls

Pollutant Loads Reductions

The permit requires the County to annually submit estimates of expected pollutant load reductions as a result of its proposed management programs. For consistency with the Tributary Strategies process, the County is using the Chesapeake Bay Program (CBP) guidelines for BMP removal efficiencies as shown in Table III-H1 to estimate pollutant load reductions These factors are used to represent the pollutant reductions for acres controlled by each BMP type in the County. The County is working with Prince George's County and regional research institutions to increase the amount of data available to quantify the benefits of stream restoration and ESD/LID runoff management practices.

Table III-H1. Chesapeake Bay Program: Urban Storm Water Best Management Practices. Pollutant Removal Efficiencies.

PARAMETER	TN	TP	TSS
Wet Ponds and Wetlands	30	50	80
Category B. Dry Detention Ponds and Hydrodynamic Structures	5	10	10
Category C. Dry Extended Detention Ponds	30	20	60
Category D. Infiltration	50	70	90
Category E. Filtering Practices	40	60	80
Category F. Roadway Systems	TBD	TBD	TBD
Category I: Stream Restoration	0.02 lb/linear ft/yr	0.0035 lb/linear ft/yr	2.55 lb/linear ft/yr

Table III-H2 shows the estimate of TN and TP annual stormwater loads from developed lands and the reductions associated with existing stormwater controls in the County for 2006. Out of the total of 324, 552 acres in the county, 81,603 developed acres are under the County's control for stormwater. This excludes the rural zoning, parklands, forests in parklands, the Cities of Rockville, Gaithersburg, and Takoma Park, state and federal properties, and state maintained roads.

There has not been a significant change in acres developed or acres controlled by best management practices since the previous reporting year of 2005. The number of acres for the year 2006 under stormwater management control is about 6% less than shown in the Annual Report for 2005 because some duplicated acreage was identified. The pollutant loads were adjusted accordingly. Approximately 52.7% of all developed lands under the County's jurisdiction are under some form of stormwater management, with an estimated 15.1% reduction in TN and a 19.2% reduction in TP loadings in runoff due to those reductions.

TABLE III-H2. Stormwater Delivered Loads (lbs) for the Year 2006 from Developed Acres under Montgomery County Stormwater Management *(excludes rural zoning, parklands, forests, Cities of Rockville, Gaithersburg, and Takoma Park, state and federal properties, and state maintained roads)*			
Description	**Runoff Type**	**TN (lbs/yr)**	**TP (lbs/yr)**
Acres Developed (under County stormwater management) 81,603	Uncontrolled	701,788	67,731
Acres with BMPs (estimated; includes stream restoration drainage) 42,480	With BMPs	278,937	21,657
Average % removal of all BMPs		23.6	38.6
% developed acres with control 52.7		% reduced 15.1	% reduced 19.2
average Loading (lbs/acre) (based on County monitoring 1994-2001)		8.6	0.83

Special Protection Area (SPA) Program

The SPA Program was established in 1994 to protect high quality waters from construction and development-related impacts. Part of the Clarksburg SPA is targeted for monitoring to meet the NPDES permit requirements for discharge characterization as summarized in Section II-D2. The SPA annual report for 2006 is included in electronic form in Attachment A and as hard copy in Attachment B. The report summarizes monitoring to date on the effectiveness of sediment and erosion control and stormwater BMPs and impacts on stream biota and physical characteristics.

Recommendations include setting the same priority for siting ESC and SWM best management practices as achieving desired densities in the Clarskburg Master Plan SPA., considering imperviousness caps particularly for headwater areas, addressing the continuing conflicts between SPA goals for protecting stream resource conditions with those for road code and other development requirements, and converting ESC controls to stormwater management as early as possible during the last phase of construction. Monitoring results are summarized below.

- ESC BMPs show high variability in effectiveness, related to phase of grading in the contributing drainage area and siting of the structure. Thermal impacts were shown as brief spikes in temperature which did not seem to impact downstream biota.
- Stormwater BMP monitoring has been complicated by the slowed rate of conversion from ESC once the drainage areas have been stabilized. Thermal impacts did not appear significant at the eight projects evaluated so far. One of six projects monitored for groundwater level showed changes apparently related to the development at that site.
- Stream resource condition seems to reflect intensity and imperviousness levels of new development. Streams in areas of higher imperviousness and more intense development have not recovered to pre-development conditions.

PART IV. SPECIAL PROGRAMMATIC CONDITIONS

Interjurisdictional Commitments

The County continued its activities in ongoing multi-jurisdictional efforts to protect the Anacostia and the Patuxent Reservoirs Watershed, as well as the Chesapeake Bay restoration effort and the Potomac Trash Free Treaty Initiative. This has led to cooperative funding for monitoring, modeling, and restoration and retrofit project inventories, design, and construction. As part of these efforts, the County monitoring results are being used for regional screening and priority setting in these watersheds. The programs and projects being implemented through these watershed groups contribute toward the County's Permit-required watershed restoration goal and also the pollutant reductions that will be needed to meet the Tributary Strategies nutrient caps.

Potomac Trash Free Treaty Initiative

In June 2006, County Executive Douglas Duncan signed the Potomac Trash Free Treaty, with its goal to achieve a trash free Potomac by the year 2013. The Alice Ferguson Foundation (www.fergusonfoundation.org) is leading this effort to address the trash problem from a watershed-wide approach to benefit the entire region. In Maryland, the Anacostia River was selected as the first subwatershed of the Potomac for which a trash management strategy towards achieving this goal would be developed.

The Metropolitan Washington Council of Governments prepared the Anacostia Watershed Trash Reduction Strategy which includes the baseline efforts of local governments, regional agencies, and non-profit organizations to cleaning up and preventing trash from getting into the Anacostia River and its tributaries. As pointed out in that report, there is an estimated 20,000 tons of trash and debris which enters the Anacostia every year. The majority of this comes from improper disposal or illegal dumping.

The strategy includes six objectives to significantly reduce the amount of trash getting into the Anacostia River. Montgomery County is a participant on the workgroup to develop and implement programs, policies, and projects that will achieve these six objectives. The final report is available at: *http://www.anacostia.net/download/AnaTrashStrategy_final.pdf*.

Objective 1: Significantly increase funding for trash reduction programs
Objective 2: Create and enhance regional partnerships and coordination among businesses, environmental groups, individual citizens, and government at all levels and in all jurisdictions
Objective 3: Improve people's awareness, knowledge, and behavior relating to littering and illegal dumping
Objective 4: Promote the greater introduction and use of effective trash reduction technologies and approaches
Objective 5: Improve enactment and enforcement of laws to reduce trash
Objective 6: Increase trash monitoring-related data collection, generation, and dissemination efforts

Report to the County Council

In September of 2006, the DEP submitted to the Council a special report required through Montgomery County Council Resolution R-15-1562 adopted on August 1, 2006. Through that resolution, the Council requested the DEP to prepare and submit to Council a report on the status of the County's NPDES MS4 permit for Montgomery County. The Council requested specific information on TMDLs, on permitting and implementation of ESD/LID approaches, on expanded watershed restoration targets, and on streamflow and water quality monitoring. The report is included in electronic format in Attachment A and in hard copy in Attachment B.

TMDLs and the County's Permits

Montgomery County will be the last of Maryland's major jurisdictions to receive its third round NPDES MS4 Permit. For all of the third round Permits (major, medium-sized, and State Highway Administration), the MDE has maintained Permit conditions that require best available technology and implementation of the maximum extent practicable control measures. The MDE is responsible for determining if the proposed controls will achieve any TMDLs developed to address water quality impairments. If the MDE determines this is not the case, then the MDE will mandate additional or alternative controls.

ESD/LID implementation

The DPS is responsible for implementation of the 2000 Maryland Stormwater Design Manual (the Manual). The DPS routinely requires the use of the non-structural practices (ESD/LID techniques) described in Chapter 5 of the Manual to replace or enhance the use of the structural best management practices that would otherwise be required. From 2001 on, there has been an increase in the number of nonstructural practices installed in the County. Filtration practices represented the single largest category from 2001-2005. In 2004, the number of nonstructural practices far exceeded any individual type of structural treatment device.

Expanded Watershed Restoration Targets

Since the MDE issued the first Permit, the County has consistently and voluntarily gone beyond the minimum in order to protect local stream resources. Examples include the SPA designations and regulations, adoption of the countywide stream resource condition monitoring, and the multimedia approach to natural resources protection reflected in our groundwater, forest preservation, and air quality strategies.

For the existing Permit, the watershed restoration goal is 2,694 acres. The County's actual implementation rate has been much higher than this and should increase during the third round of the Permit. By 2012, the County's goal is to have added stormwater controls to about 4,700 acres and to have constructed projects on about 30 miles of currently degraded streams.

Flow and Water Quality Monitoring

The DEP proposed to add streamflow and water quality stations in the Rock Creek watershed and guarantee long-term continuity of the existing monitoring within the Paint Branch watershed of the Anacostia. This monitoring data was deemed necessary to establish existing flow and water quality conditions in these impaired watersheds and to track and predict changes in water quality as changes occur in the contributing watersheds.

Clean Water Task Force

In November of 2005, the Chesapeake Bay Foundation and the Natural Resources Defense Council brought together the Stormwater Partners Coalition of over 20 regional and local environmental and community groups to advocate an increase in the stringency of the Montgomery County NPDES MS4 Permit. After discussions at the MDE informational meeting in November 2005 and then directly with the MDE, it became apparent that it would be timely and worthwhile to examine in detail the differing roles and responsibilities for stormwater management and water resources protection among the County's local and regional agencies.

In May 2006, the County Executive and County Council jointly established the 'Clean Water Task Force' to examine the status of the County's stormwater management and water resources protection programs. The Task Force members include the directors and high-level administrators from DEP, DPS, DPWT, Montgomery County Public Schools Facilities Management, the MNCPPC, and the WSSC. These agencies either have regulatory and review responsibilities or potential significant impacts on runoff from their operations or facilities.

The Task Force goals were to go beyond the existing Permit requirements to improve communication and coordination across agencies and to recommend more effective policies and practices to protect County stream resources. A significant amount of discussion was focused on increasing the use of ESD/LID techniques throughout the County.

Representatives of the Stormwater Partners Coalition and the Business/Development Community were participants at the meetings to provide input on their concerns for managing stormwater in the County. The Final Report, completed in spring 2007, included short-term recommendations that could be implemented without significant funding or staffing impacts and long-term recommendations that required additional staff, funding, policy, or regulatory changes. More information on the Task Force recommendations will be included in the Annual Report for 2007.

Who to Call If you Have a Watershed or Water Quality Question:

Montgomery County Agencies

Department of Environmental Protection (DEP)

http://www.montgomerycountymd.gov/siteHead.asp?page=/mc/services/dep/index.html

Countywide Monitoring 240-777-7726
Environmental Outreach..... 240-777-7786
Illegal Dumping Hotline..... 240-777-7700
NPDES MS4 Program..... 240-777-7711
Stormwater Management Structures 240-777-7766
Turkey Branch Watershed Restoration 240-777-7768
Water Pollution..... 240-777-7770

Department of Permitting Services (DPS)

Sediment from construction site entering streams 240-777-6366
Stormwater management and sediment control plan review issues 240-777-6320
Water supply wells and septic tank issues..... 240-777-6300

Department of Public Works and Transportation (DPWT)

Blocked storm drain, inlet pipe or erosion from public storm drain 240-777-ROAD
Recycling and hazardous household waste disposal 240-777-6400

Soil Conservation District

Agricultural best management practices 301-590-2855

Inter-County Agencies

Maryland-National Capital Park and Planning Commission (M-NCPPC)

Problems with streams, trash and debris in County parks and in streams301-495-2535
Weed Warriors (Volunteer Invasive Plant Control Program)..... 301-495-2464

Washington Suburban Sanitary Commission (WSSC)

Patuxent Reservoirs Watershed Protection Agreement..... 301-206-8100
Discolored or odorous drinking water; sanitary sewer problems..... 301-206-4002

Maryland State Agencies

Maryland Department of the Environment (MDE)

Emergency Response (hazardous materials spills or discharges) 410-537-3937
Fish kills 410-974-3238

Department of Natural Resources (DNR)

Illegal dumping on state park land 301-924-2127